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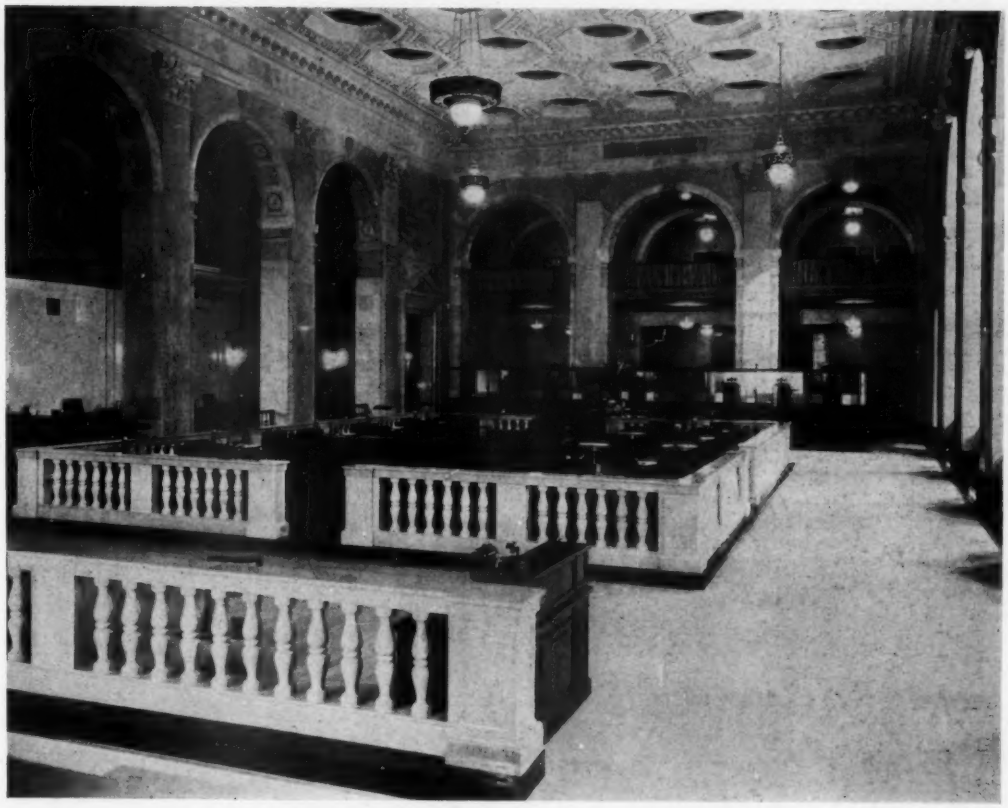

VIEW IN MAIN BANKING ROOM

CREATING a NEW INVESTMENT CENTER in NEW YORK

With Special Reference to the Building of S. W. Straus & Company, Fifth Avenue at 46th Street, New York

WARREN & WETMORE, *Architects*

TO the thoughtful and prudent man, the word finance means something more today than it did fifty years ago. In fact, it has now a double meaning and that meaning is controlled by the man's attitude towards the use, or abuse, of money.

Years ago "the financial district" was Wall street and its vicinage. To that district went men and groups of men,—corporations,—to find money to float all the many schemes, sound and "wildcat," that man's ingenuity and rush for wealth could invent. There was no well drawn line between operations in money that on the one hand sought out safe and sure investment, or on the other took all the hazards of the gambler in mad orgies of speculative gambling. No matter how carefully or conservatively certain groups of men tried to segregate the mad elements of speculation from the saner seeking-out of safe investment opportunity, there was the taint of the gambler over it all. Clients, feeling they were classed with the "lambs" were loathe to trust those who lived so intimately with the "bulls and bears" of finance.

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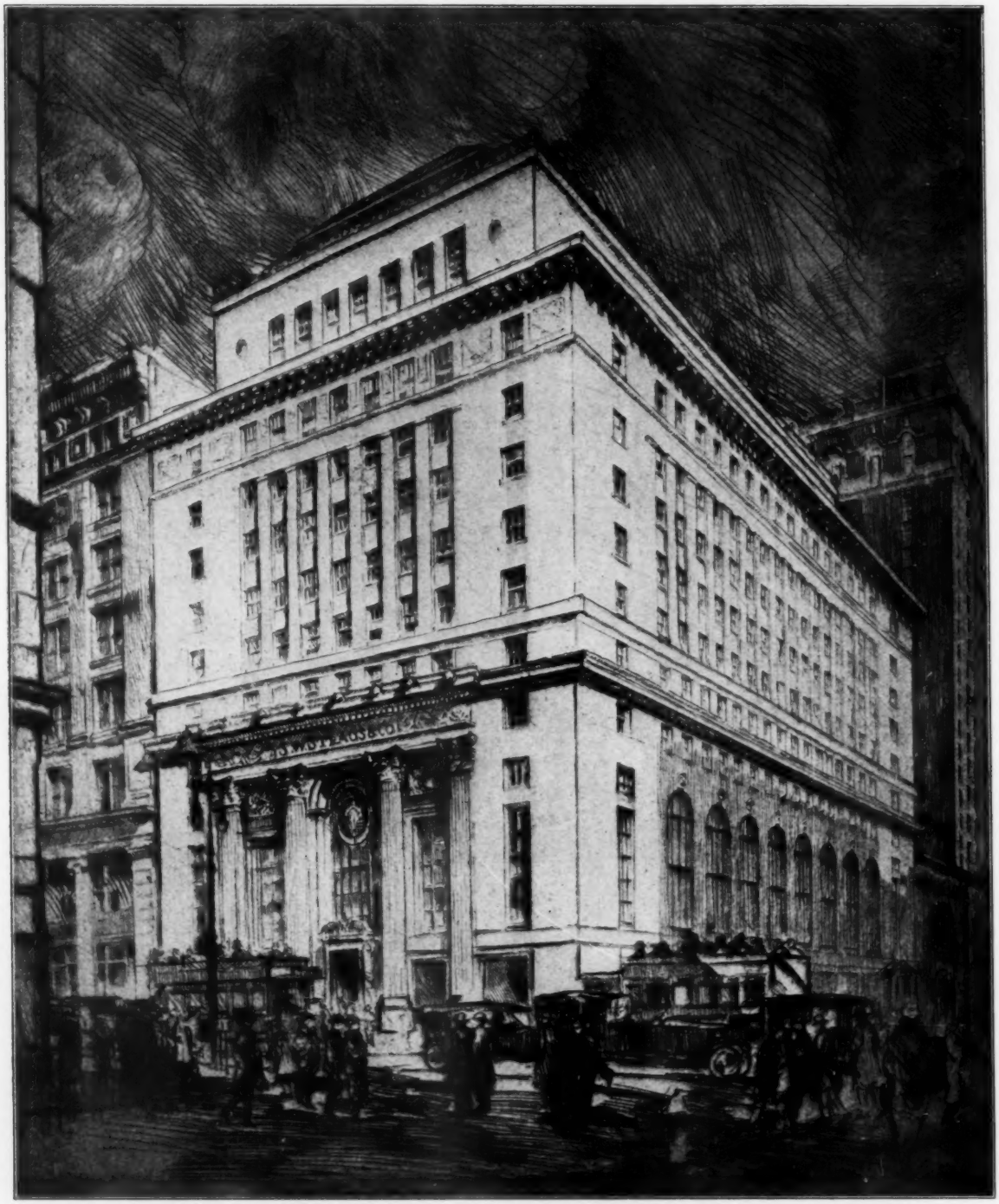
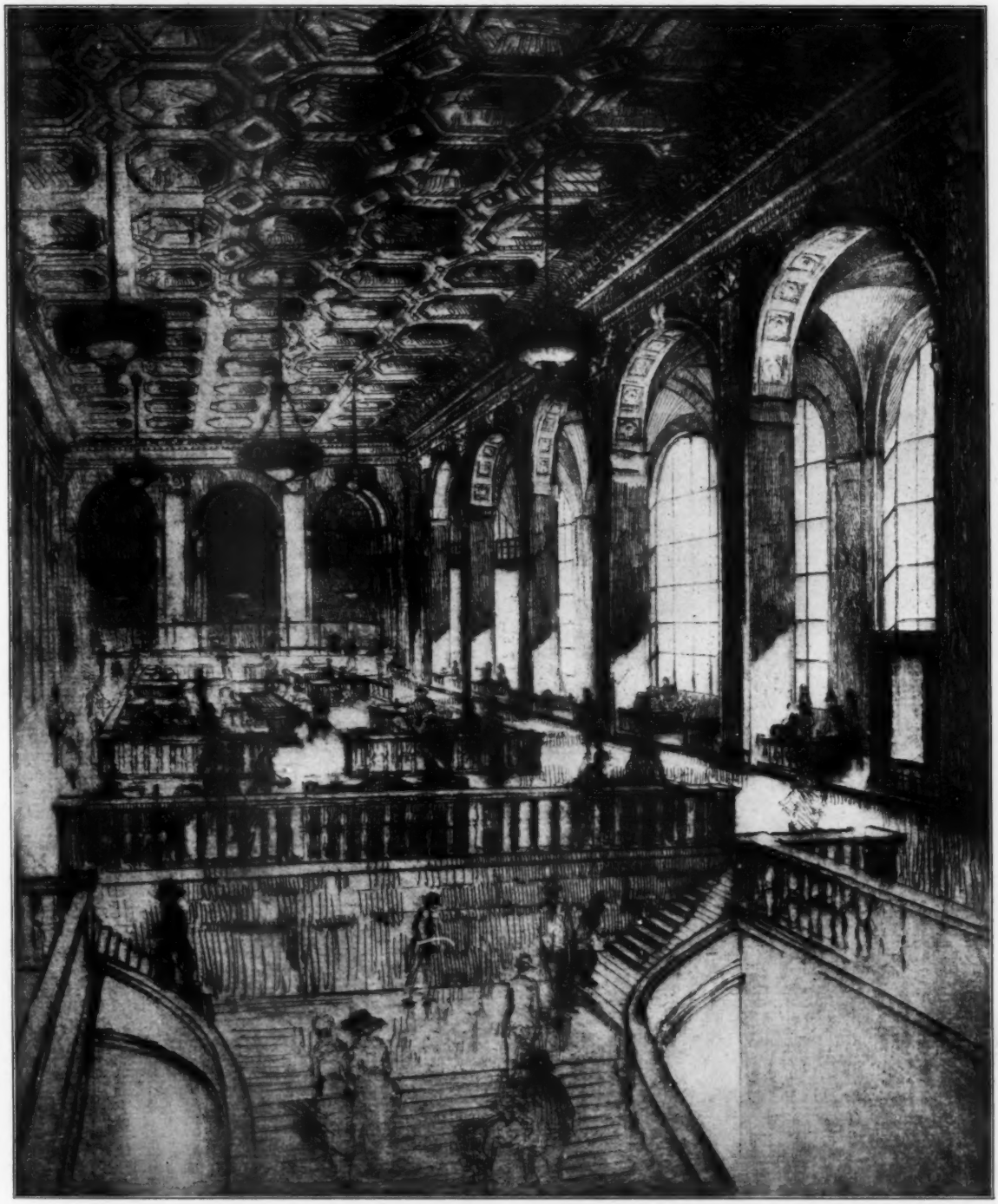


BUILDING FOR S. W. STRAUS & CO., FIFTH AVENUE AT 46TH STREET, NEW YORK
WARREN & WETMORE, *ARCHITECTS*
From an Etching by Paul Roche



MAIN BANKING ROOM

BUILDING FOR S. W. STRAUS & CO., FIFTH AVENUE AT 46TH STREET, NEW YORK

WARREN & WETMORE, *ARCHITECTS*

From an Etching by Paul Roche

The large and solidly founded investment organizations with the prudence and foresight that had enabled them to become large and solid, sought for a location, a section of the city that would afford a proper opportunity to group a finely conceived lot of buildings in a neighborhood, dignified and proclaiming the safe and solid character of their enterprises.

Fifth avenue, "the finest street in the world," was logically the place, and that, until that time undeveloped section for business purposes, lying between Forty-second and Fifty-ninth streets, was the particular part selected for the grouping of the investment, financial operations.

PRESIDENT'S ROOM

FROM its earliest development this section has been the heart of aristocratic New York. It marks the summit of Murray Hill, the very heart of the richest residential section. All about the many dignified buildings that are crowning this neighborhood are yet to be seen the "brownstone fronts" whose owners have from father to son occupied them for many generations. It was the solid families of New York that dwelt in these quiet, stately mansions, and it is, therefore, fitting, if they are to give way to a new order, that they should be set aside for equally aristocratic structures that promote the basis of solid wealth exactly as did these old New Yorkers.

This present writing is not intended so much to draw the reader's attention to the building of S. W. Straus & Company, the latest addition to this rapidly growing investment section, as it is to accent further, as was done in another reference in this issue, the great commercial value of the conservation of an architectural resource.

Naturally in contemplating a structure to be erected in a location that had already splendidly developed, the promoters would seek to erect a structure that, while adequately meeting the requirements of a great investment business, would become an artistic asset to the city. This is certainly an unselfish motive and one with all the attributes of good citizenship.

THE Straus Building is on the Northeast corner of Forty-sixth street and Fifth avenue. It was designed by Warren & Wetmore, from whose offices have come the plans of a majority of the buildings forming the Grand Central Station group.

The building covers the whole of the corner property which has a frontage of 100 feet on Fifth avenue and 180 feet on Forty-sixth street. The

EAST SIDE, BANKING ROOM, SHOWING FIRST MEZZANINE FLOOR

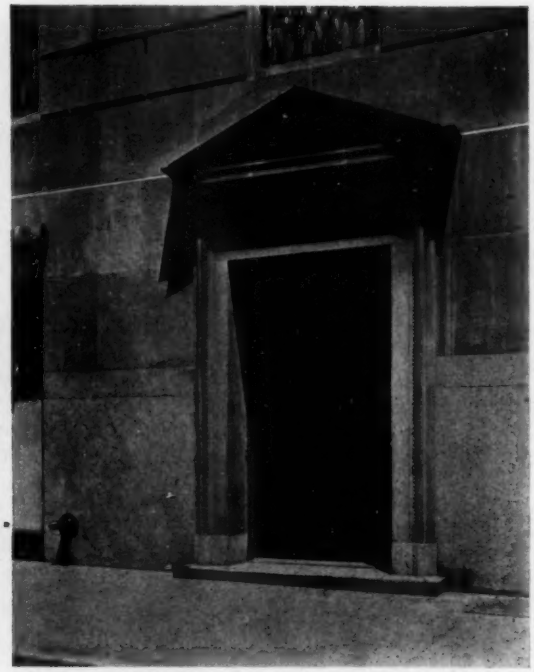
LOOKING ACROSS BANKING ROOM FROM FIRST MEZZANINE FLOOR

LOOKING ALONG FIRST MEZZANINE FLOOR ON EAST SIDE OF BANKING ROOM

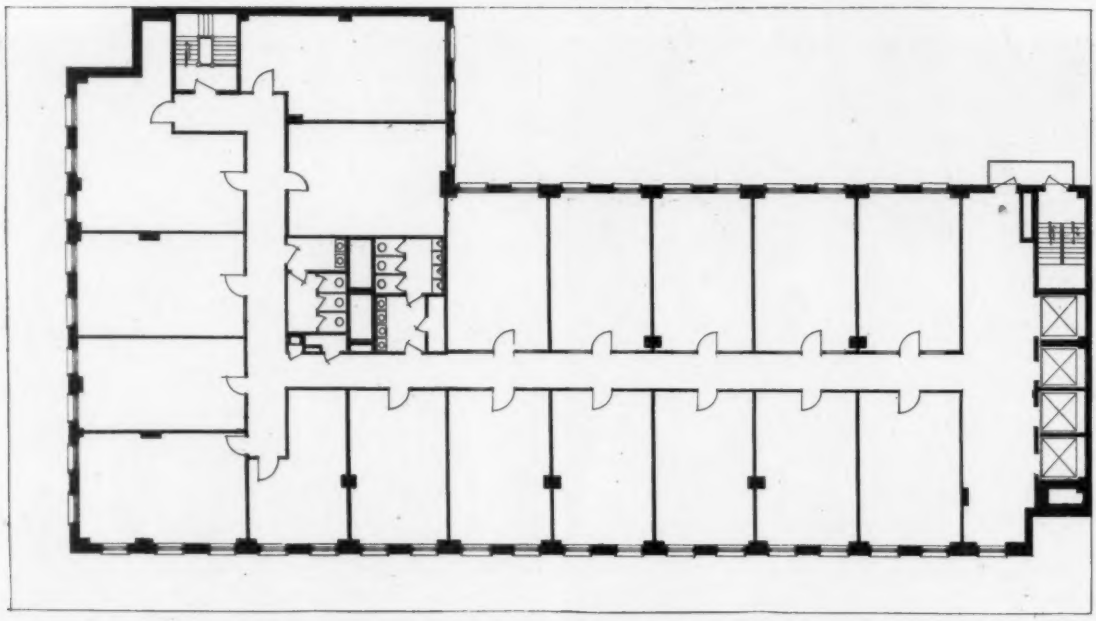
BUILDING FOR S. W. STRAUS & CO., FIFTH AVENUE AT 46TH STREET, NEW YORK

WARREN & WETMORE, *ARCHITECTS*

LADIES' ROOM



ENTRANCE ON 46TH STREET

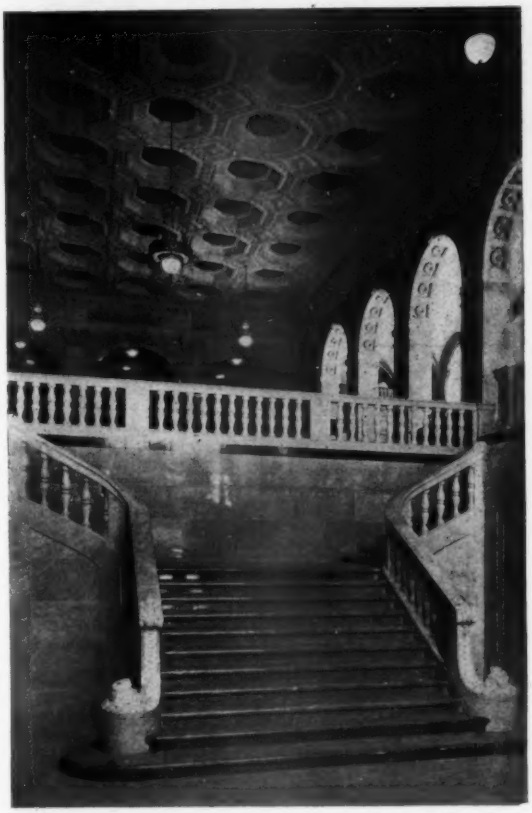


FIRST AND SECOND PENT HOUSE FLOOR PLANS

BUILDING FOR S. W. STRAUS & CO., FIFTH AVENUE AT 46TH STREET, NEW YORK

WARREN & WETMORE, *ARCHITECTS*

general character of the building and its interior plan and detail are adequately shown in the accompanying pictures. It possesses no unusual architectural engineering features and no notable physical difficulties were encountered during construction. The foundations go to solid rock and the structure of steel with cinder concrete floors and hollow tile



STAIRWAY LEADING FROM FIFTH AVENUE ENTRANCE TO BANKING ROOM

partitions carries a remarkably low insurance rate. The exterior walls are of brick faced with buff colored Bedford limestone.

The main entrance is on Fifth avenue and a handsome and architecturally satisfying staircase, designed on a scale commensurate with the dignity of the establishment, gives one immediately a sense of the artistic fitness of the banking room to which it leads. The stairway leads first to a wide landing, from which stairs lead on either end to the right and left to the main or banking floor.

The banking room has a height of 40 feet and has on three sides a mezzanine floor, the ceiling of which is arched. This floor is given over to desks of stenographers and securities salesmen. The desks of the directors and heads of departments are on the main floor along the sides, with handsome offices for the use of those whose work demands quiet and freedom from interruption, in the front of the building. The interior is marble for the banking room and walnut for the wood finish of the private offices. All metal railings and grills are of quiet colors set off with gold.

A second mezzanine floor is used for offices of the S. W. Straus & Company, but this floor is not seen from the banking floor, which occupies the place of a court from the ceiling of the ground floor to the ceiling of the second mezzanine, or, properly speaking, the fourth floor. On the ground floor there is a store on each side of the Fifth avenue entrance and three stores fronting on Forty-sixth street. Two push button electric elevators of small size are used for intercommunication between the floors used by the company. One is on the north side of the main entrance and goes from the ground floor to the second mezzanine; the other is on the south side of the building and goes only from the banking floor to the second mezzanine. These elevators are for the use of the principal officials and for emergency use by all employees.

The main elevators, four in number, are in the Forty-sixth street entrance corridor. They are finished with walnut and give the impression of handsome rooms and not of elevator cages. They are operated by electricity and have a speed of 300 feet per minute. They give access to eight floors, each of which contains offices to be rented. There is a light court on the north side, the south wall of which is carried on a line of columns on the north side of the banking room. A central hallway on each floor assures good window lighting for all offices. The present divisions provide 18 offices on each floor, but the tile partitions allow of changes to suit tenants.

In the basement there are two lounging rooms for employees of the S. W. Straus & Company, one for women and one for men, as well as a ladies' dining room and men's dining room. The kitchen has a quarry tile floor and white tile walls. Lunches are served to 200 persons each day. Heating, lighting and ventilation are of the usual type in the best office buildings.

The first movement towards the creation of a new investment center in New York, it is claimed, was carried forward from an original idea of Mr. S. W. Straus. Having decided on this radical change of location and selected a site, Mr. Nicholas Roberts, vice-president of the S. W. Straus & Co., was placed in entire charge. During the progress of the work, Mr. Roberts called to his assistance Mr. Charles G. Duffy, architect and engineer, who served in all matters as technical advisor.

XUM

MAIN LOBBY

THE AMBASSADOR HOTEL

PARK AVENUE, NEW YORK

WARREN & WETMORE, *Architects*

NEW YORK'S enormous transient population increasingly demands hotels, and then, more hotels. Five years ago the over-cautious investor was quite certain that New York was fully provided with hotel accommodations to meet its need far into the future. In fact, he was not certain if the city was not over-built as to its hotels. Yet, since that time there have been erected the Commodore, the Pennsylvania, the Biltmore and others which have added approximately four thousand rooms to New York's hotel capacity. In spite of this substantial addition, every prudent man visiting this City secures his "reservation" days and even weeks ahead. If he has not, he will find himself tramping the streets at night, vainly seeking a place on which to lay his head.

New York's hotels are famous not only all over our own country, but throughout Europe. They combine elements of good architecture and the most correct equipment. Not always have they in their decorative treatment been everything that could be desired, but during recent years elements of quiet refinement have been introduced and the erstwhile garish, flamboyant types are not recurring.

The new Hotel Ambassador on Park avenue, Fifty-first to Fifty-second streets, is one of the newest and, in some respects, most progressive in its exterior and interior design of recent hotel construction in New York. Hotels are the temporary homes of strangers. Even the ubiquitous traveler feels a certain sense of lonesomeness when he contemplates the average hotel interior, particularly his bedroom. In designing and equipping the Hotel Ambassador, the object was to remove as far as possible the usual "hotel" atmosphere and to create the same feeling of "at-homeness" that one feels on entering a private house.

THE methods of standardization usually pursued in the furnishing throughout the house are not evident at the Ambassador. The furnishings, in the main, are copies of fine old examples of masterpieces of good craftsmanship that have been produced during the world's progress in decorative art. In this

way the Ambassador has, in its interior aspect, escaped the stigma of commonplaceness, has avoided the monotonous and has set a new standard in decoration and equipment.

Reference to the typical plan will show how the spirit of domesticity was carried out in the designing of the guest floors of this hotel. The guest may "cut his coat according to his cloth." He may indulge his desire for comfort and privacy to the full extent of his purse. The standard hotel room and bath, all perfectly appointed, may be had, or ranging through suites of varying sizes the guest may have his own apartments with their specially assigned servants. He may, if he likes, take his meals in any of the grills or sumptuous dining rooms or he may surround himself with exclusiveness and dine, *en famile*, or in the company of his selected guests. These things add new elements to hotel life, and rob it of much of the lonesomeness that one always feels when tossed into new surroundings.

The general decorative features of the interior are, of course, in keeping with the high class service the Ambassador sets out to render. The color scheme in every place is harmonious and good. Best of all, it is restful and shows its quality inasmuch as it does not blatantly assert it.

The illustrations accompanying this article indicate the general character of the interior, save only as to color. As before stated, the color is effected with fine judgment.

The exterior, also to be judged from the illustrations, is of a style and character that harmoniously relate with other fine structures that line either side of Park avenue from the Grand Central Station group on the South, stretching North to Fifty-ninth street.

CIRCULAR LOUNGE ON MAIN FLOOR

MUCH has been said in these pages as to the necessity for the conservation of our architectural resources in New York if we are ever to redeem the city from the many errors that have been committed in the past. The first step, and the most important, was the enactment of zoning regulations. The fine effect of these restrictions is beginning to be apparent all over the larger city, but in no place

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LOUNGE ON MAIN FLOOR

LOUNGE
THE AMBASSADOR HOTEL, PARK AVENUE, NEW YORK
WARREN & WETMORE, *ARCHITECTS*

is it in better evidence than in this rapidly building-up Park avenue section.

The upper stories of the Ambassador have been designed to meet zoning rules. Contrast the present effect with what would have happened if the usual flat topped roof had been designed. To sense further the good effects of these zoning restrictions, the saunterer along Park avenue has only to scan the view either North or South. Here he will find that an architectural resource has been most carefully conserved and that a section has been created that will insistently and for all time proclaim the wisdom of these well considered restrictions.

The Ambassador, claimed by its promoters to be an aristocrat of hotels, sits in dignity amidst aristocratic surroundings. The effect of environment, good or bad, on the frequenter is conceded. The men or women who gain their first impression of New York from living in a hotel so well designed and so finely equipped, will not accuse us of unduly claiming that ours is a city of homelike hotels, where the transient visitor may find rest, recreation and a large measure of education in things as they ought to be.

LOUNGE ON MAIN FLOOR

Christ Church, Alexandria, Va.

(See reproduction of original drawing by O. R. Eggers on opposite page)

CHRIST CHURCH in Alexandria, Va., was, before the addition of its present tower, typical of a class of church buildings erected during our Colonial period. It was a plain, foursquare building, with a hip roof, and its main architectural features were the cornice and the finish of doors and windows. These received the considerable attention that was characteristic of the work of the skilled Colonial builder.

George Washington was one of the first vestrymen of this church, and the pew he occupied remains today as it was in Washington's time.

General Robert E. Lee, who commanded the Confederate forces during the Civil War, was also a member of this church, coming from his stately home in Arlington, a sketch of which house has been made by Mr. Eggers for this series.

CHRIST CHURCH, ALEXANDRIA, VA.
THE AMERICAN ARCHITECT Series of Early American Architecture

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EDITORIAL

The Advancing Architect

THE homely simile of "the tail wagging the dog" may very correctly be used when referring to certain conditions in the building trades all over the country.

Naturally, an industry so centrally controlled by organizations that represent elements of labor, as building, will exert its influence wherever building is carried forward. It is, therefore, worthy of particular mention when an instance where a group of organized architects so thoroughly realize their responsibilities to their professional brethren and their duty to the general public is presented.

On another page in this issue there is printed a communication from the Illinois Society of Architects to the Building Contractors' Organizations in Chicago. Contrast the wide-awake attitude of this aggressive state organization with that of organized bodies of the profession not only in Illinois, but throughout the entire country. The aggressive attitude of the Illinois Society places the profession of architecture exactly where it belongs, as the dominating factor in every building operation.

THE contention set forth in the communication of the Illinois Society that contractors have neither a moral nor a legal right to fix working conditions and wages that the public will have to abide by without the public being fully represented in the making of such agreements, is absolutely sound. Such an arrangement is directly in violation of a constitutional right. If the construction organizations will invite the architects into their councils, the public will undoubtedly have more respect for these agreements, inasmuch as they will correctly feel that their interests in these matters will be fully protected by men who are competent to represent them.

A precedent of this sort was established when the National Board of Jurisdictional Awards was formed. In this Board the owners, investors and the building public are directly interested through the architects and engineers on the Board. Making the profession of architecture a third party to all agreements insures elimination of the restrictive features that now adversely affect every building operation.

Labor having in the past secured through the influences of its voting power every law that it could demand, it is now time carefully to consider just how such laws affect the general interest and what further enactments there might be equally to insure the rights and privileges of the public.

THE wise suggestions of the Illinois Society, presented to the Dailey Legislative Committee are pertinent. Summarized, these laws would make any labor organization legally responsible under the law that it should be a felony either to demand pay or accept graft. It was further suggested that a statute be enacted, modeled after the pure food law, making it a felony for any manufacturer, retailer or distributor of building materials, to deliver any materials of a lower quality than ordered.

By such wise suggestions and in many other equally valuable directions has the Illinois Society been efficiently representing the profession of architecture. Similar good work on the part of organized architecture in every state would quickly lift the clouds that now hover over the building industry. And, what is equally desirable, firmly establish the profession of architecture as a wise and necessary element in every plan that affects the building industry in this country.

State Societies

IN a paper presented to the recent convention of the Institute by delegates from four State societies in Western States it is made evident that those societies desire the closest co-operation.

Further, every progressive movement in which the Institute is engaged is fully endorsed by these societies. Hundreds of men, now members of State societies, but who in all probability will never become affiliated with the Institute, are, by this declaration, ready and willing to work for the best interests of the profession. Can the Institute afford to ignore this important group?

Encouragement of this movement by the Institute will not lessen its authority in the profession, but would serve to broaden it and bring under it every man legally entitled to practice.

It is entirely supposable that the Eastern State societies endorse the action of their Western brethren. But, where were they in the convention? Should they not "stand up and be counted?"

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TRADE AGREEMENTS in CHICAGO

The Illinois Society of Architects Questions Contractors' Rights Arbitrarily to Fix Working Conditions and Wages

THE following communication was on June 1st forwarded by The Illinois Society of Architects to The Building Construction Employers' Association and The Associated Builders of Chicago.

Gentlemen:

We are advised that your associations have officially offered to renew existing trade agreements with the members of the Chicago Building Trades Council on the basis of $1.00 per hour for skilled labor, it being our understanding that all of the various trade agreements between your associations and the various labor unions expired yesterday by time limitation.

We are not unmindful of the fact that the execution of such agreements has in the past so operated as to make Chicago a closed city; that the actual operation of the agreements executed by your associations fixing working conditions, restricting the number of apprentices, the establishment of the principle of the job stewards, the closing of all avenues of employment in connection with all building operations to all other than members of the Building Trades Council of Chicago has so acted as to enhance greatly the cost of all building construction, largely through a gradual reduction in the amount of work performed per day by the mechanics of all trades. The increased cost of building construction due to the operation of these closed agreements, which have actually erected a Chinese wall around Chicago, has been variously estimated at from five to thirty-five per cent. We are of the opinion that all such closed agreements are against public policy and should not be renewed.

The Board of Directors of the Illinois Society of Architects at a special meeting held today directed the president of the society formally to inquire of you by what legal or moral right your associations have presumed as your justification to negotiate with and to execute contracts fixing working rules and conditions as well as the rate of wage which will so operate as to compel the building public to abide by without the building public as represented by some organization being a party to said negotiations and agreements.

We, however, recognize that custom has sanctioned the making of agreements fixing the wage scale, working conditions, etc., and we therefore suggest that your existing official offers to the members of the Building Trades Council to renew existing agreements should at once be withdrawn, and that the Building Trades Council be officially advised by your associations that before any new agreements can be entered into that the interest most largely affected, the building public, must be consulted and its approval obtained, and while we assume that your associations do attempt to represent the public as best you may, yet we suggest that some organization or organizations representing more directly the building public than either the contractors associations or the labor unions should be consulted in the making of all agreements both as to working conditions and as to the wage scale. Indirectly, the fixing of the rate of pay for skilled mechanics in the Building Trades as a matter of fact indirectly fixes the rate of pay for similar labor in the territory covered by such agreements and we question both the moral and the legal right of any association or organization to execute any agreements that either directly or indirectly fix the rate of pay which owners and investors in buildings who are not members of your associations will be compelled to pay without having been either directly or indirectly represented.

We at the same time earnestly desire some authoritative statement from your associations showing the justification of your offer to renew existing trade agreements on a $1.00 per hour basis and we venture the assertion that just as sound economic reasons may be advanced as to why the rate of pay for skilled mechanics for the coming year should not be more than 80c. per hour as any reasons that your associations may be able to advance in justification of your offer of $1.00 per hour.

Owing to the general economic unrest, the stagnation in business, the admitted need for housing, the unwillingness of investors to proceed with work at present high costs, permit us to suggest to your associations the absolute need for a general revision of the working rules which have so operated as to limit output; that the elimination of all rules limiting output are equally as important as a general reduction in the wage scale, and we believe that the differential wage scale of previous years was more equitable than the wage scale submitted by you. We further suggest that the building mechanics be officially notified that if reasonable working agreements are not executed within a certain fixed time that your associations will feel justified in starting construction work under the American or open shop plan, which has been recently inaugurated in Pittsburgh, Cleveland, Boston, Philadelphia, Minneapolis, St. Paul, Atlanta, Youngstown, Memphis, New Orleans, Omaha, Portland, Baltimore, Washington, Dallas, and other large cities.

We are convinced that if such a plan for new working agreements is put into operation that it will do much to restore conditions under which it

BUILDING FOR S. W. STRAUS & CO., FIFTH AVENUE AT 46TH STREET, NEW YORK
WARREN & WETMORE, *ARCHITECTS*

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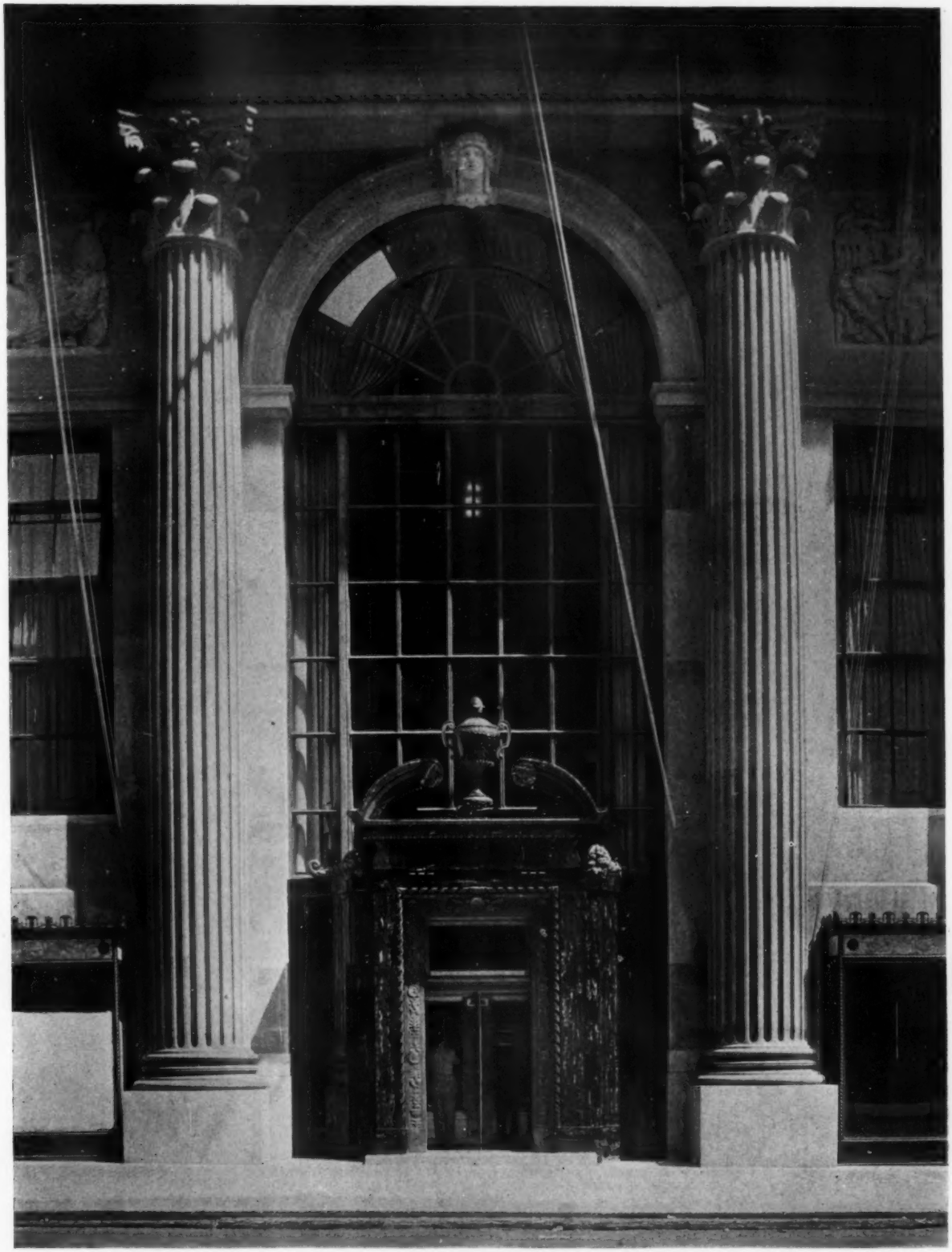
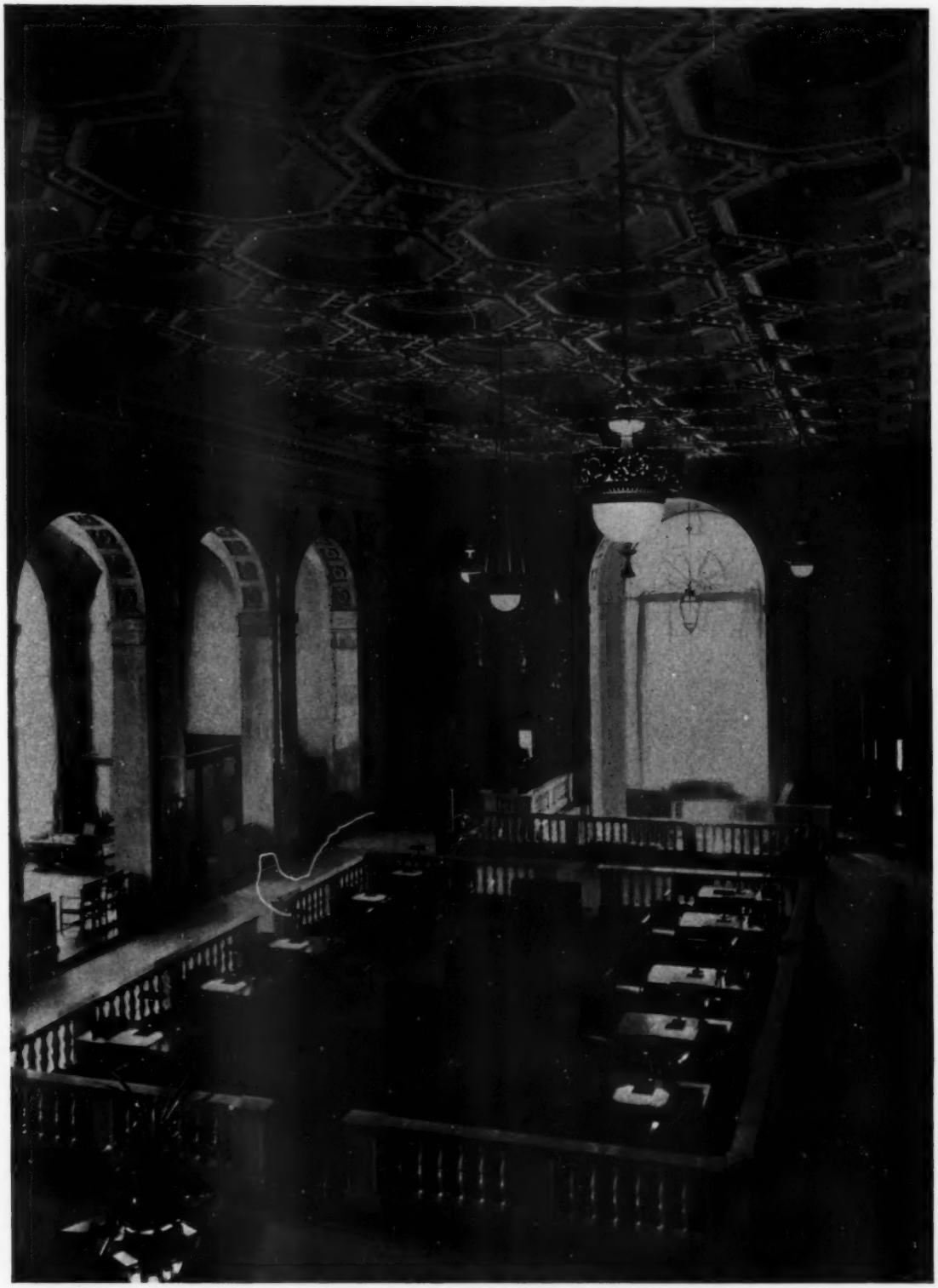


DETAIL OF FIFTH AVENUE ENTRANCE

BUILDING FOR S. W. STRAUS & CO., FIFTH AVENUE AT 46TH STREET, NEW YORK

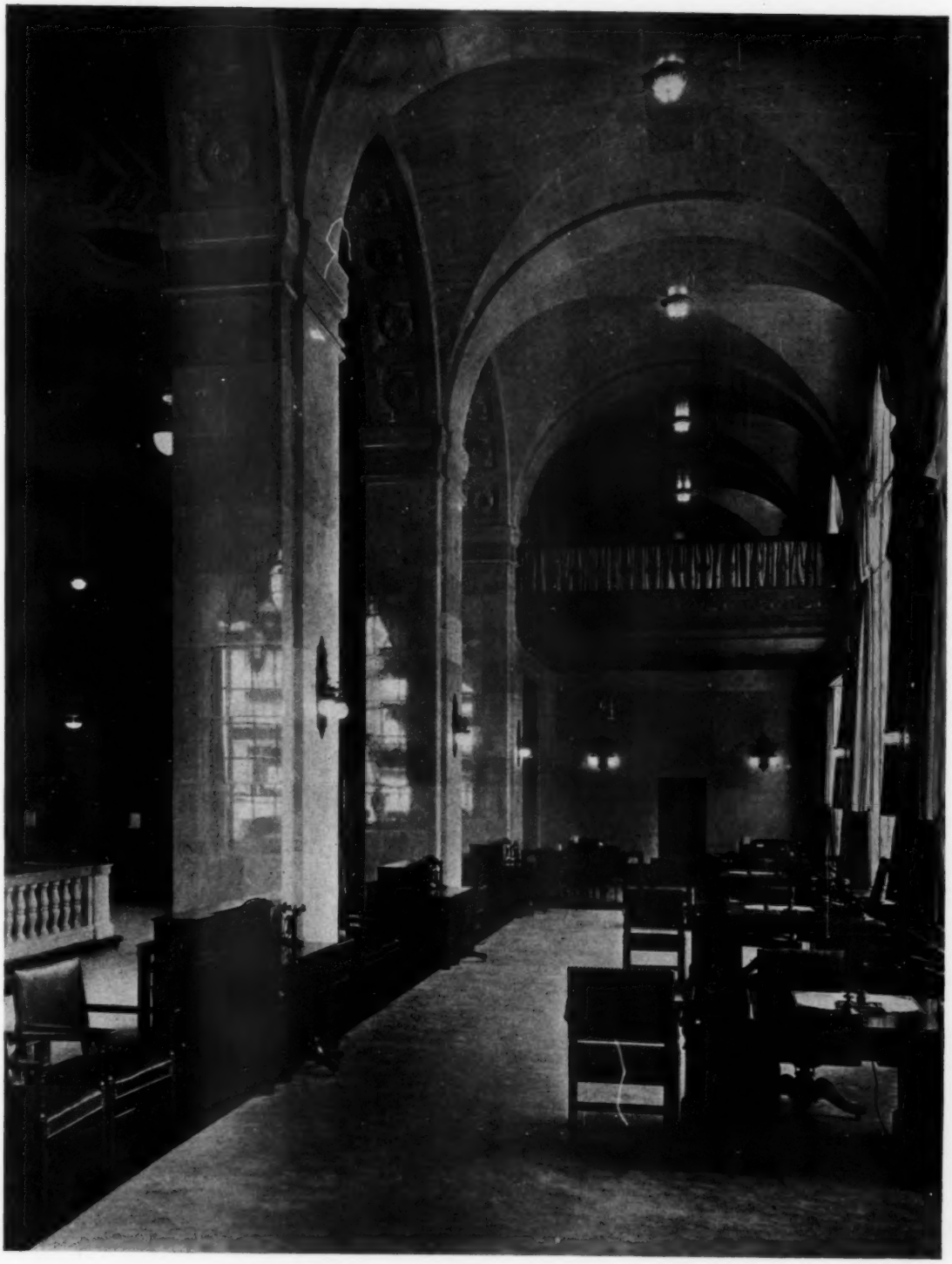
WARREN & WETMORE, *ARCHITECTS*



THE BANKING ROOM

BUILDING FOR S. W. STRAUS & CO., FIFTH AVENUE AT 46TH STREET, NEW YORK

WARREN & WETMORE, *ARCHITECTS*



DEPARTMENTAL OFFICES, SOUTH SIDE BANKING ROOM FLOOR

BUILDING FOR S. W. STRAUS & CO., FIFTH AVENUE AT 46TH STREET, NEW YORK

WARREN & WETMORE, *ARCHITECTS*

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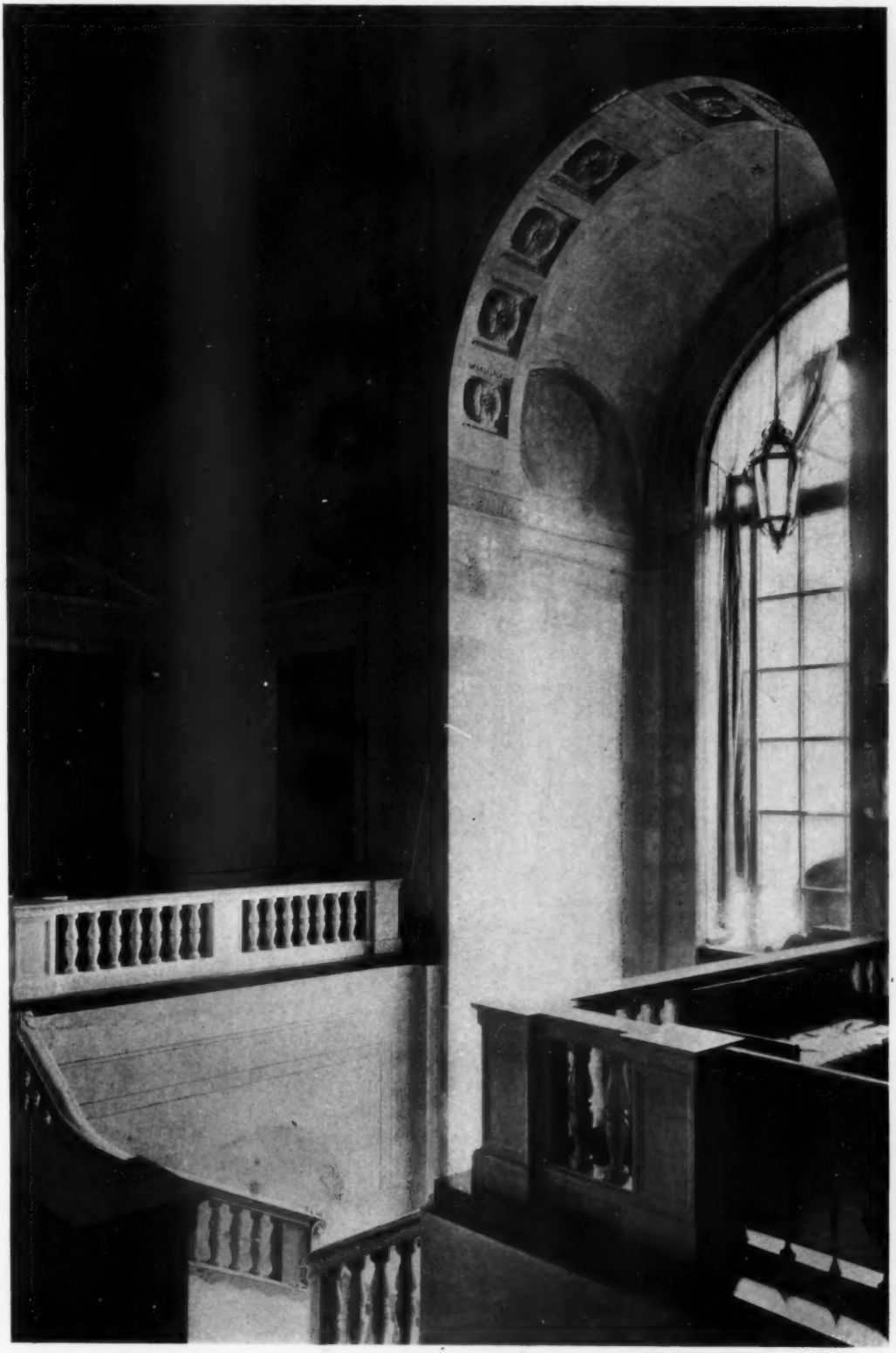

LOOKING FROM BANKING ROOM FLOOR ACROSS MAIN ENTRANCE STAIRWAY

BUILDING FOR S. W. STRAUS & CO., FIFTH AVENUE AT 46TH STREET, NEW YORK

WARREN & WETMORE, *ARCHITECTS*

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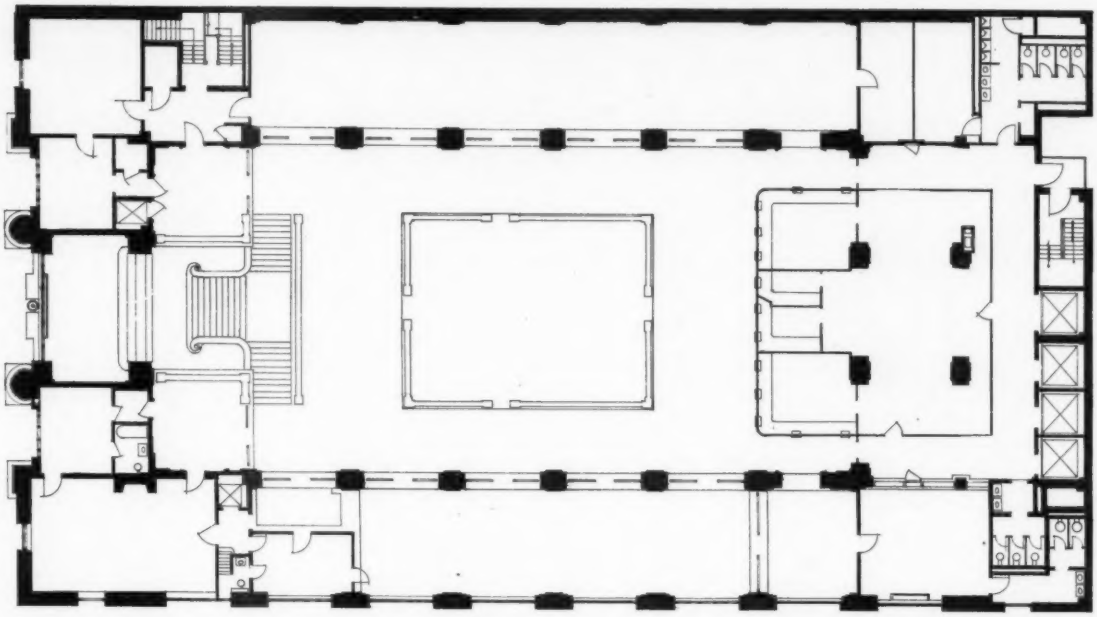
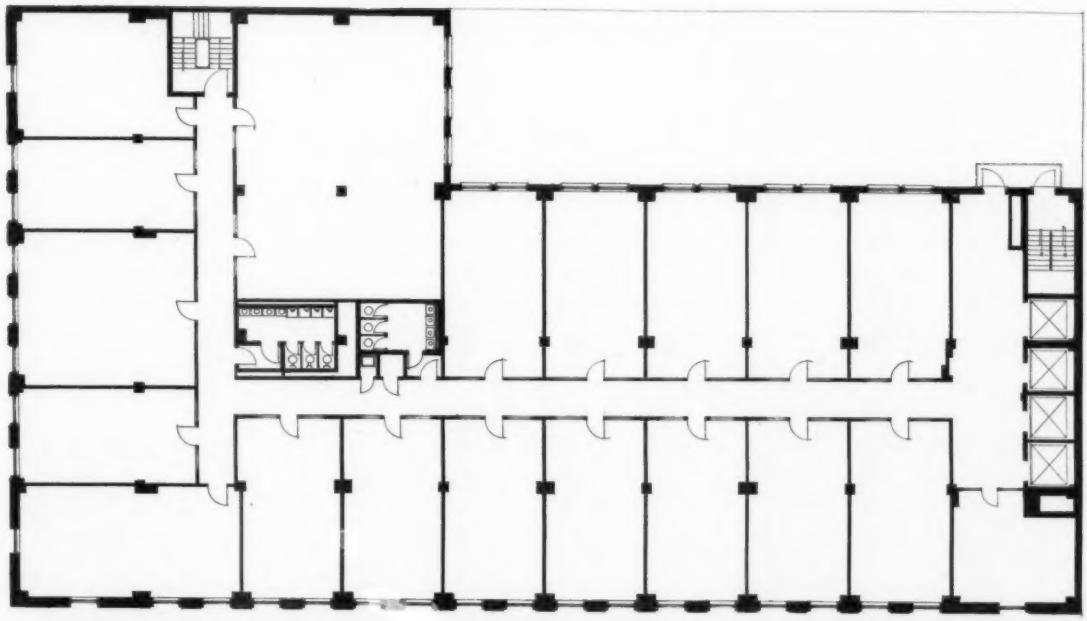
SOUTHEAST CORNER OF BANKING ROOM FLOOR

BUILDING FOR S. W. STRAUS & CO., FIFTH AVENUE AT 46TH STREET, NEW YORK

WARREN & WETMORE, *ARCHITECTS*



BANKING ROOM FLOOR PLAN



TYPICAL FLOOR PLAN

BUILDING FOR S. W. STRAUS & CO., FIFTH AVENUE AT 46TH STREET, NEW YORK

WARREN & WETMORE, *ARCHITECTS*

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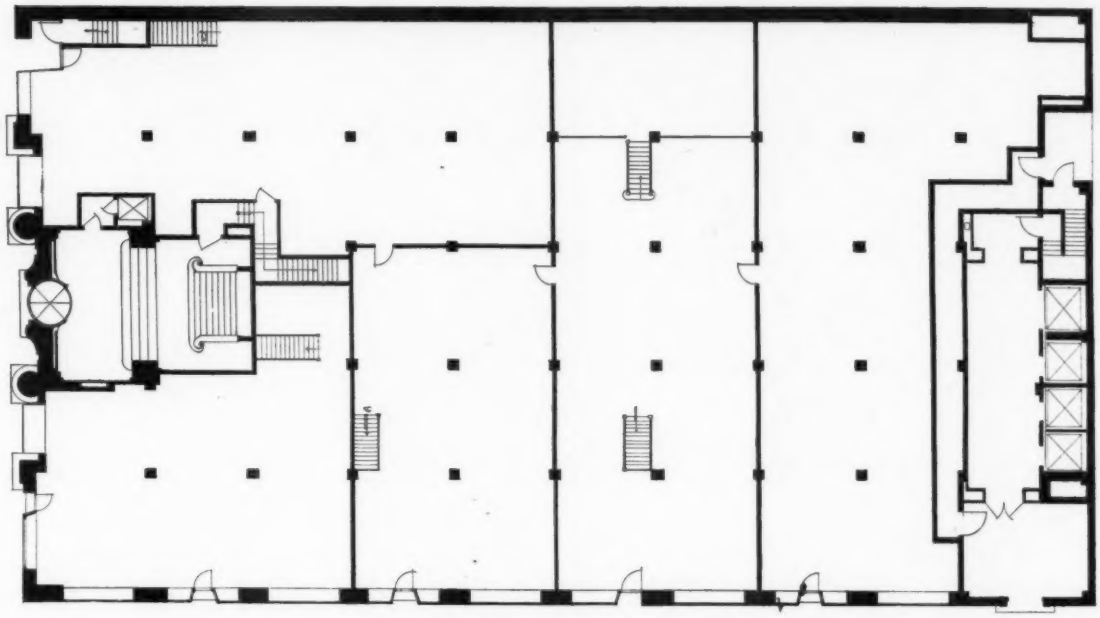
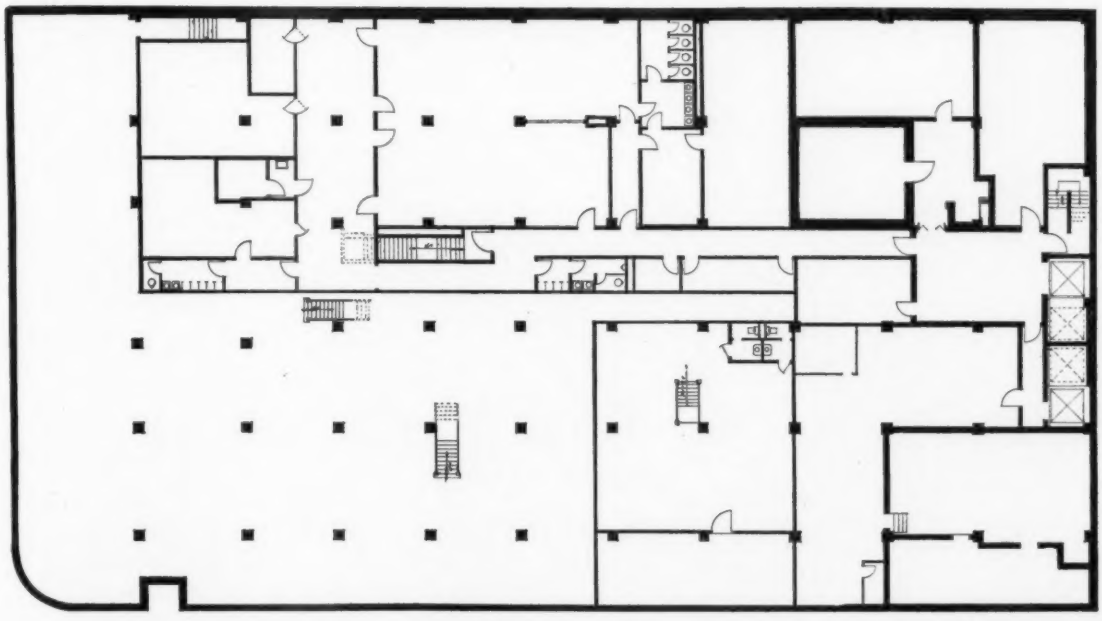


GROUND FLOOR PLAN



BASEMENT FLOOR PLAN

BUILDING FOR S. W. STRAUS & CO., FIFTH AVENUE AT 46TH STREET, NEW YORK
WARREN & WETMORE, *ARCHITECTS*

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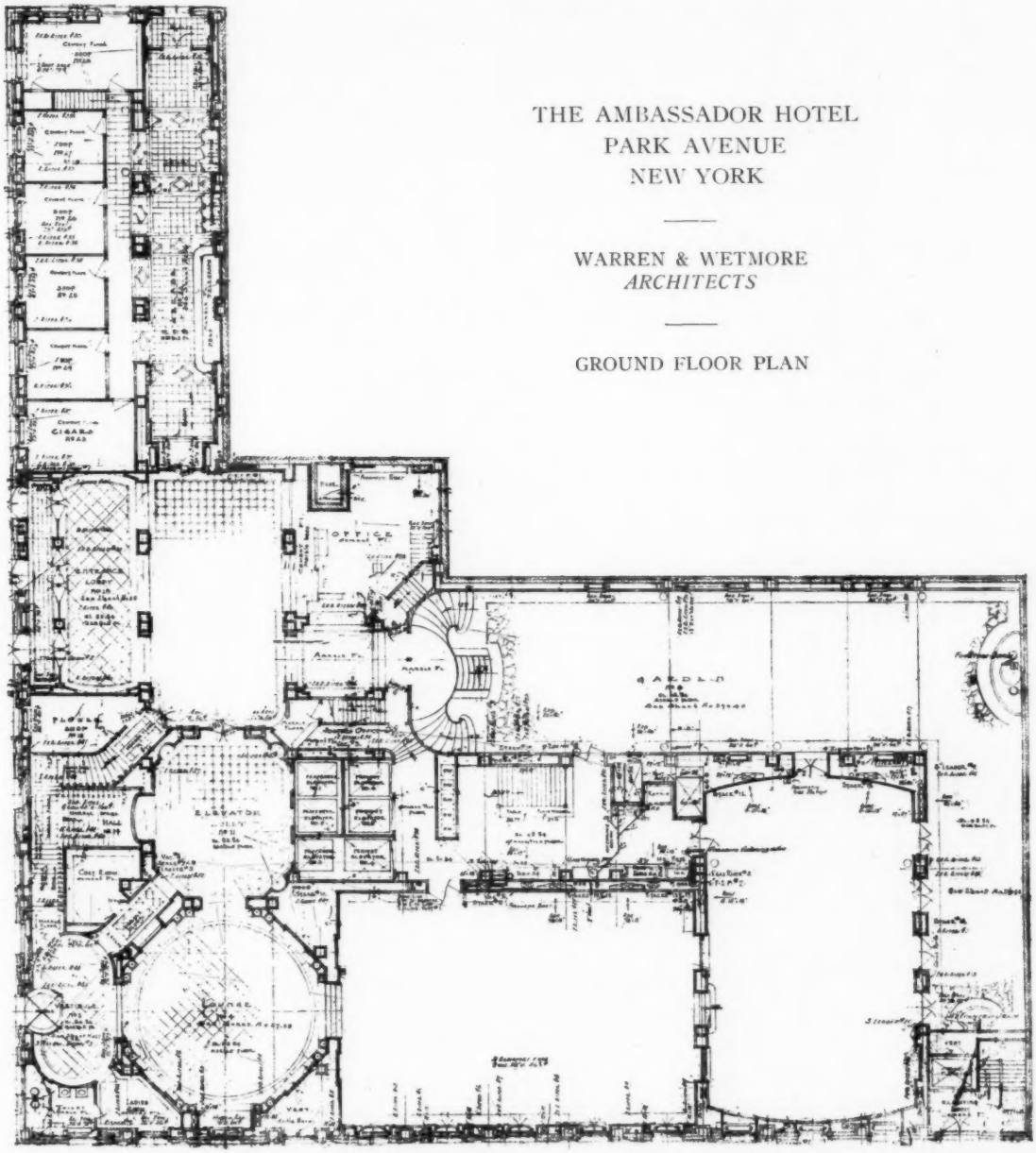
THE AMBASSADOR HOTEL, PARK AVENUE, NEW YORK
VIEW FROM SOUTHWEST
WARREN & WETMORE, *ARCHITECTS*

XUM

VIEW OF UPPER STORIES
THE AMBASSADOR HOTEL, PARK AVENUE, NEW YORK
WARREN & WETMORE, *ARCHITECTS*



THE AMBASSADOR HOTEL
PARK AVENUE
NEW YORK

WARREN & WETMORE
ARCHITECTS

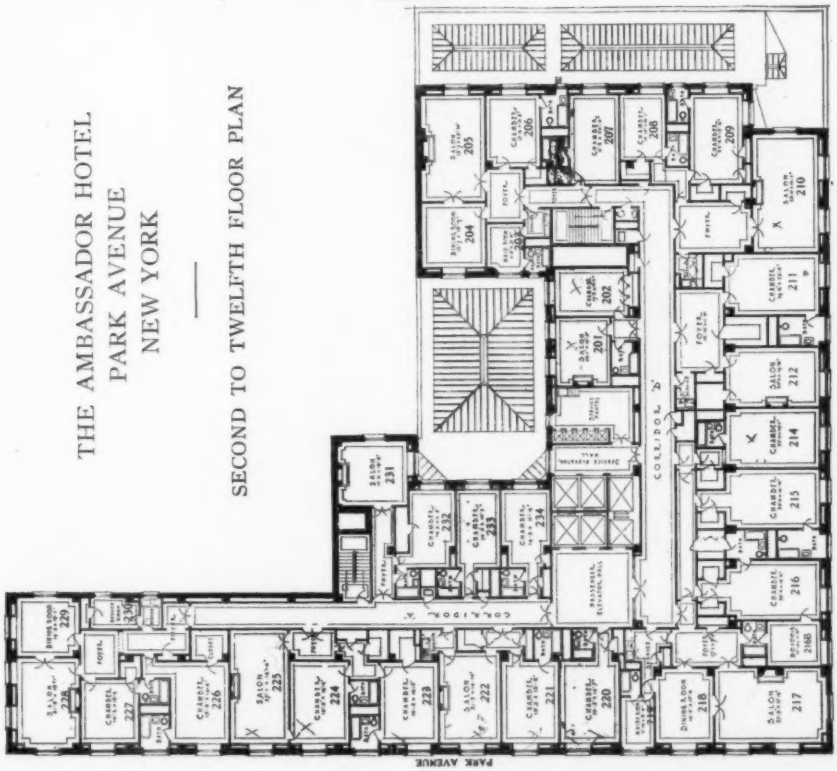
GROUND FLOOR PLAN

WARREN & WETMORE
ARCHITECTS

FOURTEENTH AND FIFTEENTH
FLOOR PLAN

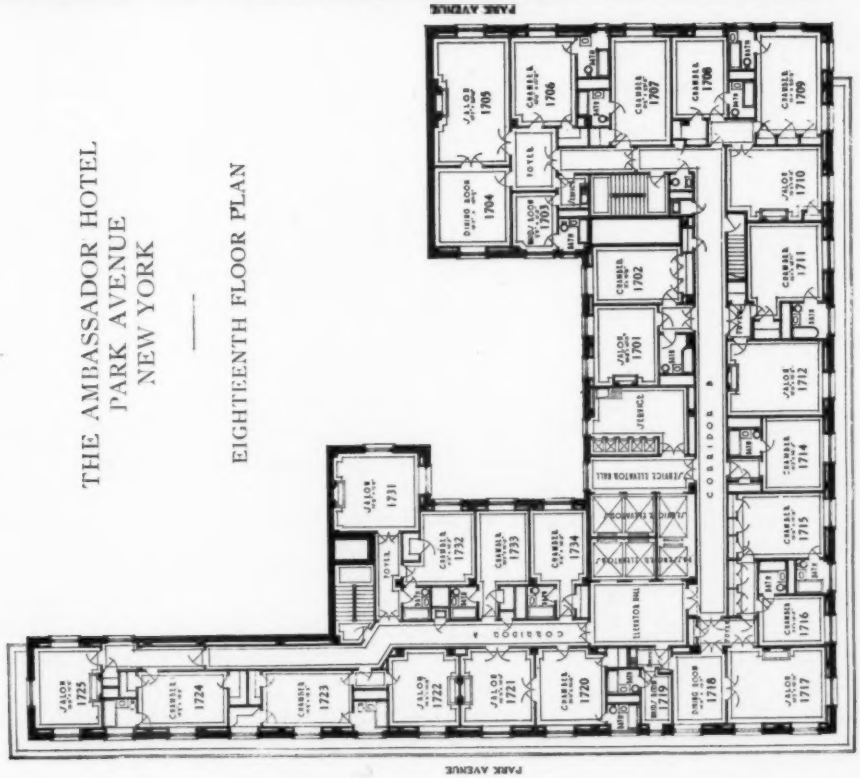
THE AMBASSADOR HOTEL
PARK AVENUE
NEW YORK

SECOND TO TWELFTH FLOOR PLAN



WARREN & WETMORE
ARCHITECTS

SEVENTEENTH FLOOR PLAN



THE AMBASSADOR HOTEL
PARK AVENUE
NEW YORK

EIGHTEENTH FLOOR PLAN

THE ARCADE
THE AMBASSADOR HOTEL, PARK AVENUE, NEW YORK
WARREN & WETMORE, *ARCHITECTS*

XUM

A PRIVATE DINING ROOM

MAIN DINING ROOM

THE AMBASSADOR HOTEL, PARK AVENUE, NEW YORK

WARREN & WETMORE, *ARCHITECTS*

XUM

TYPES OF DRAWING ROOMS IN PRIVATE SUITES, SHOWING VARIED DECORATIVE TREATMENT IN PERIOD STYLES

THE AMBASSADOR HOTEL
PARK AVENUE
NEW YORK

WARREN & WETMORE, *ARCHITECTS*

will pay investors to build and will aid in bringing about a general resumption of building operations.

Your associations must know that these are abnormal times and that construction work will generally only be started when investors and builders are convinced that they can secure a reasonable return for every dollar invested and when they can secure a day's work for a day's pay at a wage rate that is believed to be fair and equitable.

Respectfully submitted,

The Board of Directors of
The Illinois Society of Architects.
By F. E. DAVIDSON, *President.*

BEAUX-ARTS INSTITUTE of DESIGN

DIRECTOR OF THE INSTITUTE, LLOYD WARREN

ARCHITECTURE, RAYMOND M. HOOD
INTERIOR DECORATION, ERNEST F. TYLER

SCULPTURE, JOHN GREGORY
MURAL PAINTING, ERNEST C. PEIXOTTO

Official Notification of Awards — Judgment of January 25th, 1921.

PROGRAM

CLASS "B"—II ANALYTIQUE

The Committee on Architecture proposes as subject of this Competition:

"A WINDOW WITH A BALCONY"

In a War Memorial Building the second floor, i. e., the one directly above the entrance is the principal floor of the building. On this floor, opening on the main facade, is a large community room with a small reception room at either end. These reception rooms are expressed in elevation by end pavilions in each of which a window with a balcony forms the chief motive.

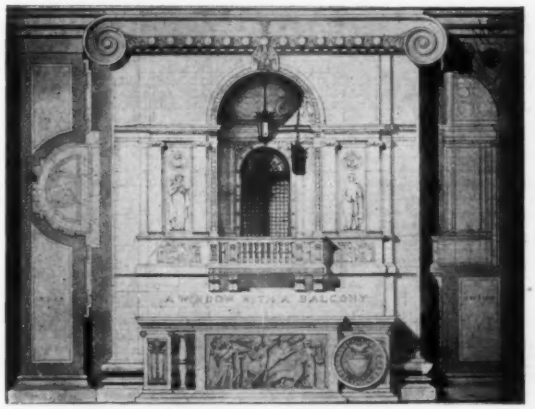
The treatment of the window frame, whether with columns or pilasters, or with moulded or ornamental members is optional, as is also the treatment of the wall surface in which it occurs. The masonry opening of the window shall not exceed 7 feet. Its height is not determined, but the story in which it occurs is 20 feet high in the clear.

Examples of a similar window treatment may be found in the Palace of the Louvre in Paris, and in many of the Italian palaces.

JURY OF AWARD:

H. O. Milliken, F. A. Godley, E. J. Kahn, W. E. Shepherd, Jr., E. A. Park, J. F. Harbeson and A. E. Flanagan.

NUMBER OF DRAWINGS SUBMITTED: 141.



FIRST MENTION PLACED

E. KAEYER — COLUMBIA UNIVERSITY

CLASS B-II—ANALYTIQUE

A WINDOW WITH A BALCONY

AWARDS:

First Mention Placed: E. Kaeyer, Columbia University, N. Y. C.; C. F. Bieler, Atelier Denver, Denver.

First Mention: L. H. Schofield, John Huntington, Polytechnical Institute, Cleveland.

Mention: E. F. Kennedy, E. F. Allodi, J. H. Shea, G. M. Burch, G. R. Marshall, L. A. Whelan, E. Weston, T. F. McDonough and I. L. Hyland, Boston Architectural Club, Boston; H. P. Baumann, Birmingham Y. M. C. A., Bir-

FIRST MENTION PLACED

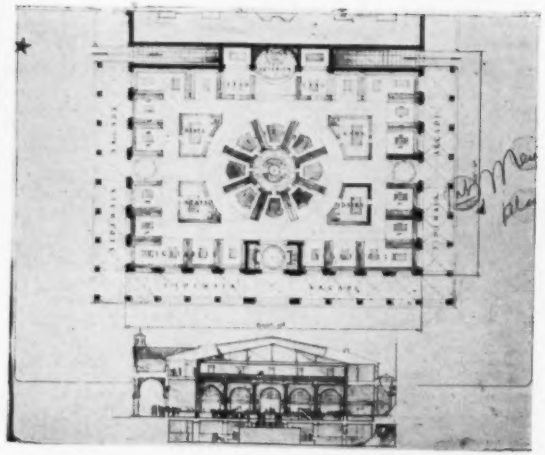
C. F. BIELER — ATELIER DENVER

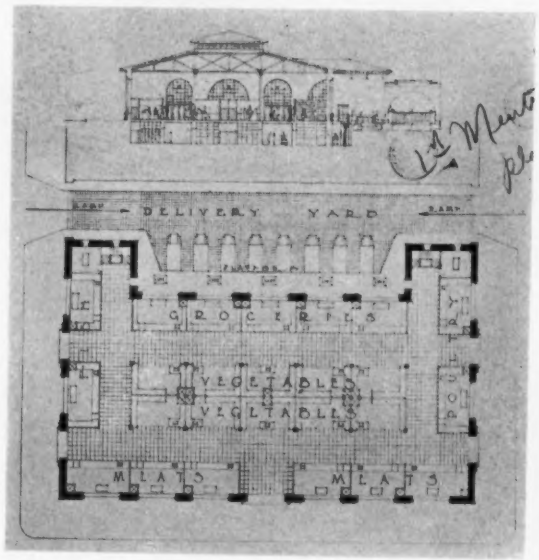
CLASS B-II—ANALYTIQUE

A WINDOW WITH A BALCONY

STUDENT WORK
BEAUX-ARTS INSTITUTE OF
DESIGN

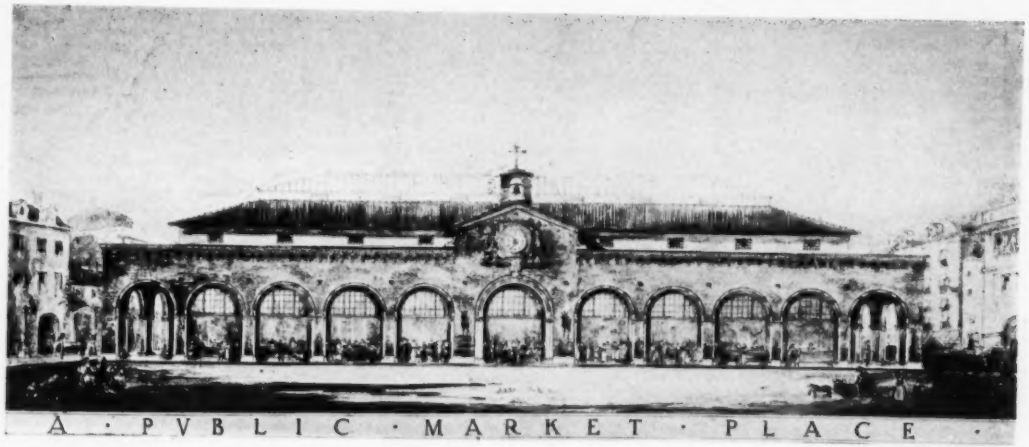
CLASS "B"—II PROJET
A PUBLIC MARKET





FIRST MENTION PLACED
D. CAMPBELL

POST & LINTEL CLUB P. H. GIDDENS



FIRST MENTION PLACED
ATELIER HIRONS

mingham; I. Tron, J. M. Paul, Myrtle P. Dyke and A. A. Ehrenrich, Columbia Univ., N. Y. C.; J. J. Keil, C. A. Brink, M. D. Smith, L. C. Page, F. B. Smith, R. H. Snyder, J. M. Lanese, J. H. Delo, L. L. Broida, E. M. Russell, C. C. Agee, G. A. Fister, H. H. Lefkowitz, P. F. McLean, P. C. Reed, C. F. Bowers, C. J. Billmeyer, P. Hohorst, J. W. Fritz, H. S. Torbett, H. L. Carter, J. S. Wood, M. C. Bert, V. H. Stromquist, H. A. Page, A. Schoepf and R. Patterson, Carnegie Inst. of Tech., Pitts.; W. R. Furey, Catholic Univ., Wash., D. C.; V. Pribil and C. J. Jensen, Atelier Corbett-Gugler, N. Y. C.; W. H. Speer, Atelier Denver, Denver; H. B. Rightmire and G. H. Brockow, Atelier Davis, Los Angeles; E. W. Cappelmann, Georgia Sch. of Tech., Atlanta; W. Harris, George Washington Univ., Wash., D. C.; J. W. Hanson, Atelier Hirons, N. Y. C.; F. Sakata, L. A. Balicki, J. Delmissier, Y. Machacek, H. P. Whitworth, W. A. Jaeger, E. Horley, D. Nisnosky and G. S. Johnston, John Huntington Poly. Inst., Cleveland; H. Silverman, Atelier Licht, N. Y. C.; F. A. Eastman, Los Angeles Archl. Club, Los Angeles; J. Garry, 644 8th Avenue, N. Y. C.; T. R. Keating, Albright Art Gallery, Buffalo; A. R. Brown, E. Gylleck, G. M. Nedved, T. Ross, Jr. and E. Norling, Atelier Parsons-Chic. A. C., Chicago; E. W. Niblet, F. M. Garey, L. C. Palmer and E. R. Gilbert, Richmond, A. C., Richmond; H. A. King and R. G. Ten Broeck, Syracuse Univ., Syracuse; F. Raudenbush, W. H. Lewis and C. A. Langzettel, "T" Square Club, Phila.; A. A. Graves, Jr. and K. Schwinley, Univ. of Kansas, Lawrence; P. E. Isbell, A. G. Clay and V. M. Reynal, Yale Univ., New Haven.

PROGRAM

CLASS "B"—II PROJET

The Committee on Architecture proposes as subject of this Competition:

"A PUBLIC MARKET"

On a level rectangular plot 200 ft. by 150 ft. in size, as formed by the intersection of three important streets, it is proposed to erect a public market. One of the long sides of the property abuts the adjoining property.

Meats, fish, vegetables, etc., will be on sale in stalls, which should be conveniently disposed to accommodate the buyers. The majority of the stalls should have approximately 400 sq. ft. of floor area and they should all be carefully studied for ample light and ventilation.

The basement, containing the storage space and a refrigerating system, supplying the ice-boxes and refrigerators in the various stalls, should be provided with ramps or other means of connection with the street, so that the meats and produce may be delivered without interference with the public. Individual lifts or stairs shall connect the storage spaces of the basement with the stalls on the main floor. Only one floor besides the basement is required although this floor may be mezzanined in parts, if desired, to provide offices for the management and service of the building.

The facade should express the character of building, not only in its forms, but also in its use of materials.

JURY OF AWARD:

R. M. Hood, J. T. Haneman, J. H. Freedlander, W. S. Wagner, E. V. Meeks, F. C. Hirons, H. W. Corbett, A. C. Jackson and D. D. Ellington.

NUMBER OF DRAWINGS SUBMITTED: 91.

AWARDS:

First Mention Placed: C. Fuller and J. Aronson, Columbia Univ., N. Y. C.; P. H. Giddens, Atelier Hirons, N. Y. C.; D. Campbell, Post and Lintel Club, Minneapolis.

First Mention: A. K. F. Volmer and A. Marshall, Columbia Univ., N. Y. C.; C. B. Marks, and L. B. Christman, Carnegie Inst. of Tech., Pitts.; R. Linder, Atelier Denver, Denver; H. Van Der Lyn, Atelier Hirons, N. Y. C.; A. E. Evans, Univ. of Kansas, Lawrence.

Mention: H. H. Price, M. E. Witmer and J. Bush-Brown Boston A. C., Boston; F. L. Ford, Atelier Corbett-Gugler, N. Y. C.; A. M. Taylor, K. Matsunoi, F. E. Sims, R. T. Morenus, A. T. Saxe, F. L. Hutchins, H. J. Hoefener and O. W. Wilson, Columbia Univ., N. Y. C.; H. C. Douden, W. M. Burke, L. H. Rank, F. H. Floyd, J. G. Todd, A. W. Chesterman, N. P. Rice, F. M. Highberger, H. E. Rudy, C. J. Pellegrini, L. Nusbaum, W. T. Spann, C. Landefeld, F. W. Klee, A. Taormina, J. C. Topnick, H. C. Kreisle, T. G. Tiffany, E. Hughes and W. L. Gibb, Jr., Carnegie Inst. of Tech., Pitts.; T. J. Rowland and G. A. Daidy, George Washington Univ., Wash., D. C.; G. H. Gibson, W. A. Robison and H. M. Burnham, Georgia Sch. of Tech., Atlanta; K. Sasagawa and S. M. Palm, Atelier Hirons, N. Y. C.; K. G. Koltukian, John Huntington Poly. Inst., Cleveland; W. W. Mezger and V. B. McClurg, Los Angeles A. C., Los Angeles; P. Goodman, Atelier Licht, N. Y. C.; W. K. Macomber, Post and Lintel Club, Minneapolis; T. J. Logan, Portland A. C., Portland, Ore.; R. E. Dando, E. L. Kennedy, G. S. Beach, K. Cheetham and J. Schierhorn, Atelier Parsons-Chic. A. C., Chic.; H. F. Neville, R. R. Hibbs, and R. B. Bloomgarten, Univ. of Kansas, Lawrence; B. S. Georges, C. B. Lewis, D. M. Campbell and H. S. Kelly, Yale Univ., New Haven.

H. C.: J. E. Linnett, Boston A. C., Boston; P. Simonsen, Columbia Univ., N. Y. C.; R. N. Hazelwood, Post and Lintel Club, Minneapolis; D. Weinstein, Yale University, New Haven.

Building in Holland

FOR the first time the erection of portable wooden houses for permanent occupancy has commenced in the Netherlands. A building society in Rotterdam has imported five houses from Austria, which it has erected near the plant of the Rotterdam Drydock Co. for the use of the employees of the latter company, and has ordered 20 more of a similar kind. The houses erected cost from 3,250 to 3,300 florins ($1,083 to $1,100 gold at present exchange). The others ordered are to cost from 3,400 to 3,500 florins ($1,133 to $1,166) each. Each house is substantially built and is well ventilated, contains a sitting room of 16 square meters (square meter = 10.76 square feet), three sleeping apartments, and has a total inside area of 47.85 square meters. The houses are arranged for one family each, and have been erected in connection with a "garden village" or model tenements owned by the same concern and made up of typical Dutch dwellings.

Practically nothing has been done in the way of the erection of wooden dwellings in the Netherlands, especially buildings of this sort. During the war wooden barracks for soldiers and interned troops, as well as for emergency hospitals and the like, were constructed from material obtained locally, but practically all buildings for permanent occupancy are constructed of brick, stone, or concrete. This has been due partly to the comparatively high cost of wood, most of which must be imported, as well as to the nature of the climate and the policy of building authorities. So long as the present exchange situation exists, it is hardly likely that American lumber interests can compete with Austria or Germany in these lines. The demand for houses in the Netherlands, both for workingmen and for the public generally, is such that considerable attention must be paid to such construction in the immediate future.

REFRIGERATION
Part Three*

By CHARLES L. HUBBARD

PIPING ARRANGEMENTS IN STORAGE ROOMS

There are various ways of arranging the cooling pipes in refrigerators and cold-storage rooms, depending upon the size and service required. The simplest plan is to hang the coils along the walls, or near the ceiling when it is desired to keep the walls free for shelves or other storage arrangements. A method frequently employed in markets, stores, restaurants, etc., where it is desired to maintain a moderately cool temperature during the night without running the compressor, is illustrated in Fig. 20. In this case the expansion coils are placed in tanks filled with brine which is chilled to a very low temperature. This is similar in effect to charging the refrigerator with ice and will maintain suitable storage conditions

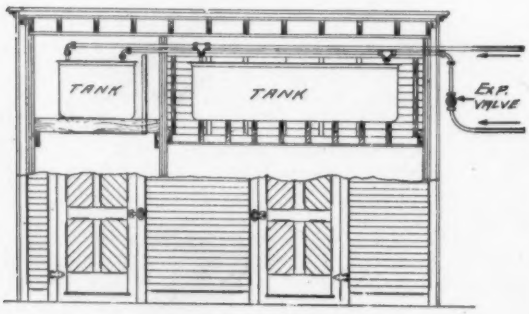


FIG. 20

for periods of considerable length, depending upon the relative sizes of tank and refrigerator. In other cases a solution of calcium chloride is used instead of brine, and this is frozen, thus making the conditions actually the same as though ice were used during the night. When the coils are hung along the walls of a room of considerable size there is not usually sufficient circulation of air properly to equalize the temperature. This may be improved by providing a light partition in front of the coils, as shown in Fig. 21, thus producing a flue effect and increasing the circulation as indicated by the arrows. A similar arrangement, adapted to overhead coils, is shown in Fig. 22.

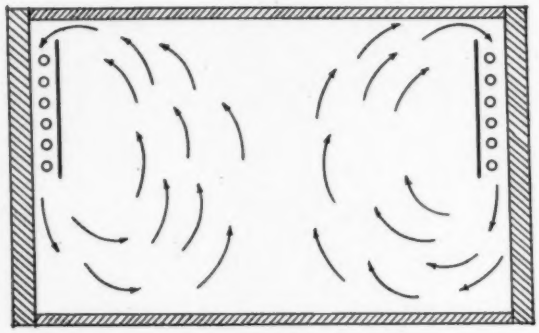


FIG. 21

In the "bunker" system, the cooling surface is massed in a single coil placed in a chamber above the storage room and the air caused to pass over it by means of suitable ducts, as illustrated in Fig. 23.

In the "indirect" system an apparatus is used similar to that employed in hot-blast heating, except ammonia gas or cold brine is supplied to the coil instead of steam. Air circulation is produced by a fan which draws its supply from a perforated ceiling duct (see Fig. 24), passes it through the coil, and

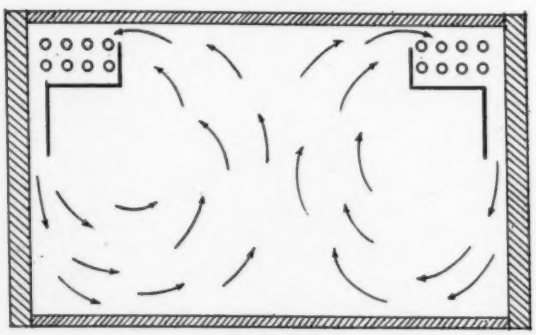


FIG. 22

*Part I appeared in issue of April 27; Part II in issue of May 25.

delivers the cold air to the room through ducts near the floor. For ordinary storage temperatures, with direct cooling surface, as in Figs. 21 and 22, it is customary to allow about 50 square feet of coil surface per 1,000 cubic feet of space for brine, and 25 to 30 feet for direct expansion. With the bunker system this may be reduced to 30 square feet for brine and 15 to 20 feet for direct expansion.

Insulation

The insulation of cold-storage rooms is a matter of much interest to the architect and one

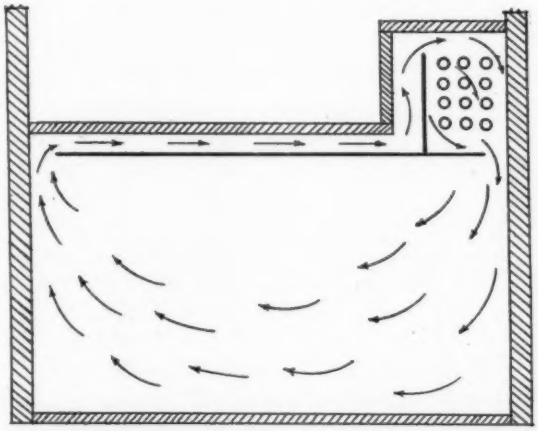


FIG. 23

which should receive careful attention. While a considerable initial saving may be made by using a cheaper form of construction, the cost of operation will be inversely proportional to the cost of insulation, and as the transmission of heat goes on continuously any saving due to cheaper construction will soon be offset by the increased cost of refrigeration necessary to balance the greater transmission of heat to the cold room. There are many different methods employed in construction of this kind, a number of which are shown in Figs. 25 to 28. These have been successfully employed by one of the large manufacturers of refrigerating machinery and may be used as a guide in the design of new work. The filling employed between joists in the wooden construction,

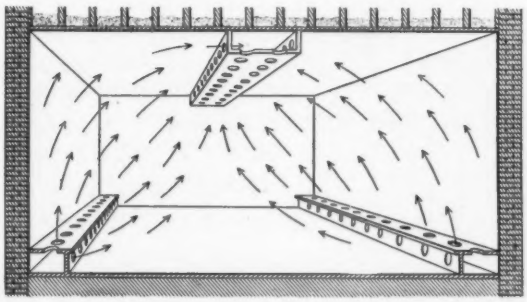


FIG. 24

shown in Figs. 25 and 26, is mineral wool. This makes a durable and satisfactory dry filling, but may be replaced by granulated cork if desired, a material which has also proven very satisfactory for work of this kind when properly packed. The first two cuts

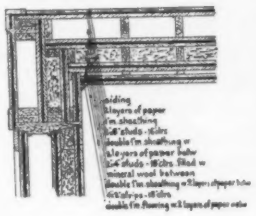


FIG. 25

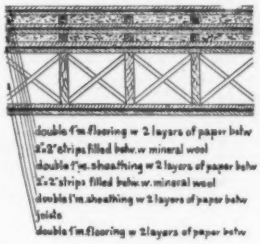

double f'm flooring w 2 layers of paper betw
2"x2" strips filled betw. w mineral wool
double f'm. sheathing w 2 layers of paper betw
2"x2" strips filled betw. w. mineral wool
double f'm sheathing w 2 layers of paper betw
joists
double f'm flooring w 2 layers of paper betw

FIG. 26

show methods of insulating walls and ceilings, respectively, in buildings of wooden construction, and the second two, similar methods for fireproof construction. Figs. 29 to 34 show details of insulation made up of cork board, asphalt, and cement, which represents one of the highest grades of construction. In this case the cork is depended upon chiefly for insulation, while the other materials are principally for

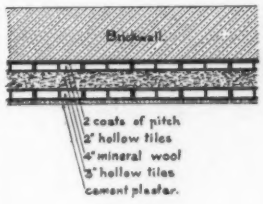


FIG. 27

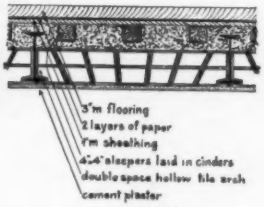


FIG. 28

waterproofing, strength, and to give a suitable wearing surface. The proper thickness of cork board in any given case will depend upon the character of the building construction, thickness of walls, ceilings, temperature to be maintained, climatic conditions, character of material to be stored, and cost of refrigeration. For average conditions, the following table may be used in the absence of more definite information:

Inside temperature to be maintained	Thickness of cork board
— 10 deg. to + 5 deg.	6 inches
5 deg. to 20 deg.	5 inches
20 deg. to 32 deg.	4 inches
32 deg. to 45 deg.	3 inches

In the diagrams given, 4 inches of cork board have been shown in each case, which may be changed to meet other conditions.

Referring to the drawings, Fig. 29 shows the insulation of a wall or ceiling of wooden construction; Fig. 30, a wall or ceiling of fireproof construction; Fig. 31, floor insulation on wooden construction; Fig. 32, floor insulation on fireproof con-

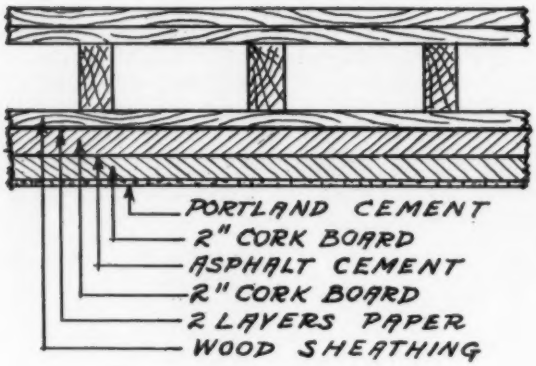


FIG. 29

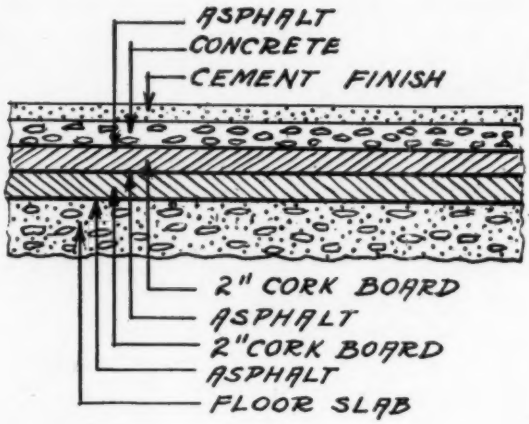


FIG. 32

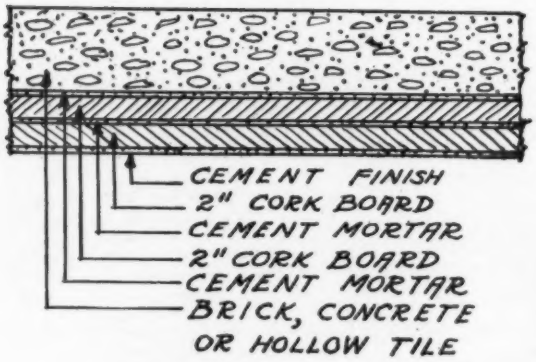


FIG. 30

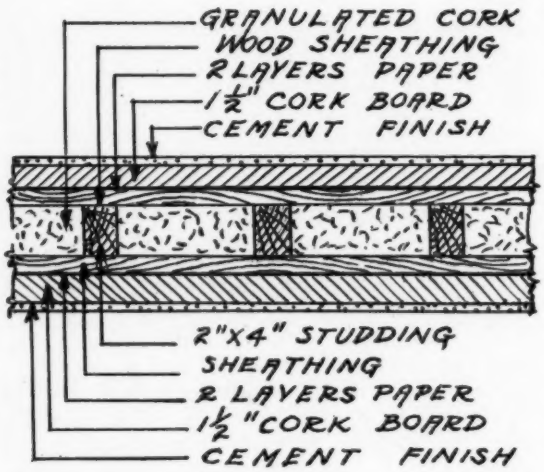


FIG. 33

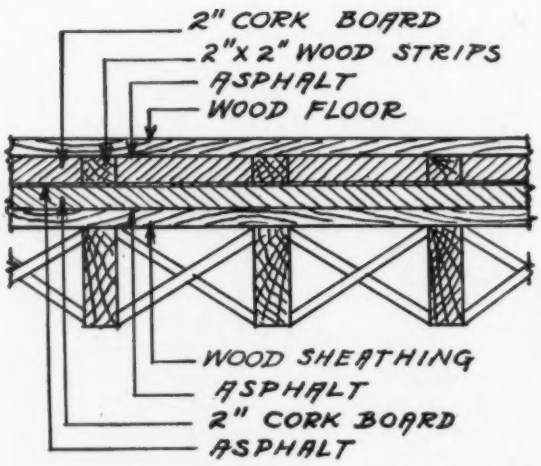


FIG. 31

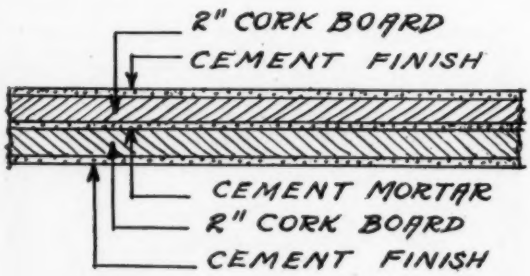


FIG. 34

ILLUSTRATING VARIOUS TYPES OF FLOOR INSULATION

struction; Fig. 33, the insulation of a wooden partition, and Fig. 34, a partition constructed entirely of cork board and cement. The above are only a few of the combinations which may be made of these materials.

Water Cooling

This is an important application of refrigeration in hotels, apartment houses, office buildings, industrial plants, etc., and should be briefly described in the present article. While different arrangements of equipment are used for this purpose, the general scheme shown in Fig. 35 is commonly made use of. This may consist of a small self-contained refrigerating machine connected with a direct-expansion coil located in the cooling tank, or the liquid ammonia may be taken from the receiver of a machine used for general refrigerating purposes in case of a hotel or other building where such a source is available. A constant water level is maintained in the tank by means of a float valve, which admits a sufficient amount automatically to replace that used or wasted at the fountains. Continuous circulation is maintained, as indicated by the arrows, by means of a small electric pump, so that the temperature of the water is practically uniform throughout the building at all times. The cooling plant should be centrally located, if possible, and all pipes well insulated with a good grade of sectional covering to reduce the amount of refrigeration to a minimum.

In systems of this kind it is customary to allow from ½ to 1 gallon of water per person per day, which includes that drunk and wasted. The lower figure may be taken for hotels, office buildings, etc., while in shops and factories, where the work is of an active nature, the larger amount should be provided for.

The greater part of the refrigeration required for a water-cooling system is for offsetting the heat transmission through the distributing pipes rather than for cooling the water actually consumed. If the water is circulated at an average temperature of 50 degrees, through pipes insulated with a good grade of covering, the heat transmission from the air to the water will amount to about 8 T.U. per square foot of pipe surface per hour for an air temperature of 70 deg.; 12 T.U. for 80 deg.; and 16 T.U. for 90 deg. Example: An industrial plant, having 500 operatives, is supplied through a drinking-water system having 800 square feet of surface in the distributing pipes, which are covered. What refrigerating capacity will be required per hour for maximum conditions, with an inside temperature of 90 deg.? And what should be the rated capacity of the machine, in tons, per 24 hours?

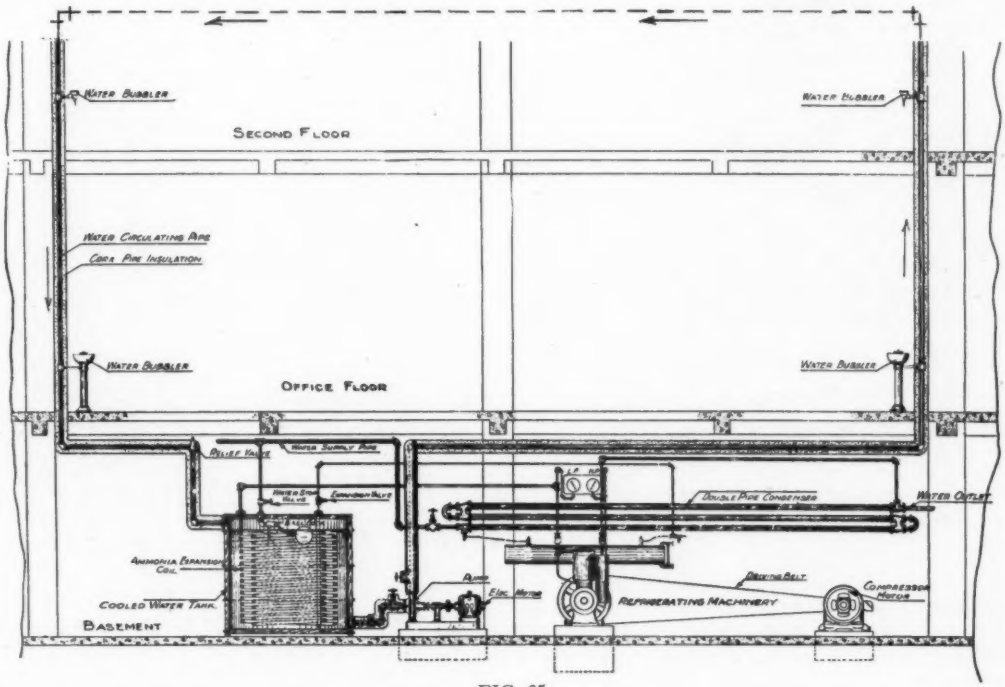


FIG. 35

Solution: On a basis of 1 gallon of water per person per day it will require 500 gallons or 500 × 8.3 = 4,150 pounds. If this is cooled from 65 to 50 degrees, it will require the withdrawal of (65—50) × 4,150 = 62,250 T.U. per day, or 62,250 ÷ 8 = 7,781 T.U. per hour. The heat transmission through

the distributing pipes for the assumed conditions is $800 \times 16 = 12{,}800$ T.U. per hour, making a total of $7{,}781 + 12{,}800 = 20{,}581$ T.U. to be absorbed per hour. The melting of 1 pound of ice requires the absorption of 14.4 T.U., hence a refrigerating capacity equal to $20{,}581 \div 144 = 143$ pounds of ice per hour will be required. This, for 8 hours, will

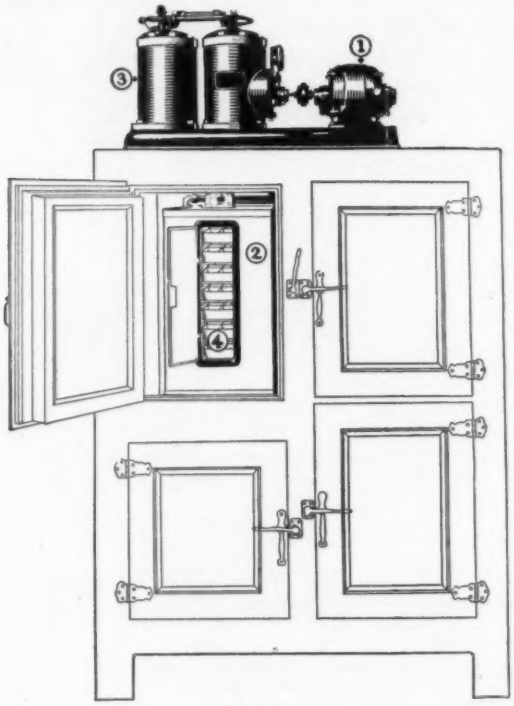


FIG. 36

be $143 \times 8 = 1{,}144$ pounds, or $1{,}144 \div 2{,}000 = 0.572$ tons. As this amount of refrigeration must be produced in 8 hours, the rating of the machine per 24 hours must be $\frac{24}{8} \times 0.572 = 1.7$ tons.

Air Cooling

Unless water from deep wells or city mains, at a temperature of 50 to 55 degrees, is available for producing the spray in an air washer, any cooling effect will be brought about by evaporation and the air will have so high a degree of humidity as to prove exceedingly oppressive at temperatures of 70 degrees or more. City water is too expensive, and well water, even when available, usually involves a considerable outlay for drilling and the installation of suitable pumping machinery.

The conditions sought may be secured by recirculating the spray water, and cooling it either by placing an ammonia or brine coil between the spray chamber and eliminators or passing it through an outside cooling tank. The former plan is more frequently used, being somewhat simpler and also cooling the air to some extent by direct contact. This arrangement forms part of the air washer equipment and is usually installed by the makers when cooling is desired. Devices of this kind are frequently employed in hospitals, dining-rooms and restaurants, banking rooms, and in certain industrial plants, like candy factories, where special processes make it necessary to limit the room temperature.

Household Installations

A type of refrigerating equipment particularly adapted to dwellings and apartments is illustrated in Fig. 36. The machine is motor-driven and commonly mounted upon the top of the ice box. The compartments are provided with small brine tanks through which the expansion coils pass, the amount of surface depending upon the temperature it is desired to carry in the compartment. In the machine illustrated, the brine tank for the entire refrigerator is placed in the upper left hand corner and takes the place of the usual ice supply. Referring to the cut, (1) is the motor, directly connected with the compressor at the left; (2) is the brine tank; (3) the condenser; and (4) a compartment in the brine tank for freezing small cubes of ice for table use. Machines of this type are automatic, the motor being stopped and started by changes in the temperature. It is desirable that they operate at comparatively low pressure and that the gas be harmless in case of leakage. For these reasons either sulphur dioxide or ethyl-chloride are commonly employed, as both of these gases meet the requirements. The machine is charged with the refrigerant and the proper amount of lubricating oil at the shops, and sealed, so that no further attention is required on the part of the user. Tests are on record where machines have run continuously without repairs for periods equivalent to over ten years of normal operation.

The Ambassador Hotel and the Architectural Engineer

IT is in the design of a large modern hotel and the arrangement of machinery and appliances for the comfort of the guests, that the work of the architectural engineer is shown to the best advantage.

Consider, for example, the New York Ambassador Hotel with its 600 chambers and about 500 employees. See the parallel, nearly one employee per room. It is said that in modern hotels there is practically one employee for each guest, so the man who plans the equipment by means of which this vast machine will function properly has no mean task.

The Architectural Engineer

IT is the architectural engineer who has the task. He receives from the architect the plans for a building in which convenience, utility and good taste have been duly considered. Accompanying the plans are the specifications for materials and workmanship. It is his part to design the supporting framework and provide all things necessary so the structure will function properly. It is a city, in fact, that he must minister to and there is a close analogy between the work of the architectural engineer and the municipal engineer.

Time was when the structural designer was called an architectural engineer, but today it is not so; he is merely an assistant. The position of the architectural engineer in relation to the architect resembles nothing so much as the Chief of Staff to a General.

The people in the hotel must be not only housed but they must be comfortably housed. Their apartments must be warm in cold weather, and cool in hot weather. The air must be changed often enough to preserve freshness and prevent lethargy. They must have ice water to drink, cold water and warm water in which to bathe, and the water must be clean and look clean. Drainage must be provided for all wastes. The lighting must be agreeable and sufficient and include not only artificial lighting but the lighting which is afforded by the windows supplied in the design of the architect. Last, but not least, cleanliness must be considered, not alone the cleanliness of the building but the laundry work for the rooms, the guests and the personnel. Power, heat, light, water supply, plumbing, ventilation; a group of words, perhaps, but a group which is pregnant with meaning to the owners. A failure in one may neutralize the effect of widespread advertising of the hostelry, which must be up-to-date. So the architectural engineer bears a heavy responsibility for his chief, the architect, who turns over to him the thousand and one technical details of the city under one roof.

Structure

THE foundations of the Ambassador Hotel go to bed rock. The frame work is of structural steel, fireproofed. The floors are top slab cinder concrete construction resting on steel beams. No problems out of the ordinary were encountered in design or during construction. The walls are of brick and the ornamental stone work is almost wholly cast imitation limestone.

Power, Heat and Light

IN the basement of the Ambassador Hotel there are three large horizontal tube boilers, claimed to be the largest in New York City. The diameter is 78 inches and the length is 22 feet. Each boiler is covered top and sides and in addition the walls around them as well as the ceiling above are insulated so the boilers, normally operated under natural draft, may be run under forced draft with a minimum of discomfort from heat to people on the first floor as well as those employed in the basement.

The coal bunkers have a capacity of 350 tons of No. 2 buckwheat coal.

There are three 200 kilowatt geared turbine units. This is a somewhat new type of apparatus for use in hotels. They are very much smaller, cost much less and are claimed to be more efficient than the reciprocating units now generally used. Their installation in the Ambassador Hotel is in the nature of an experiment and will be watched with interest, for the square foot value of basement space is high.

The same manufacturers also installed seven ventilating fan motors, four pump motors, two air compressor motors and four vacuum cleaning motors, in addition to a switchboard and a number of safety lighting panels. The lighting panels are so designed that it is impossible for anyone operating them to come in contact with live parts. This is a great improvement over the ordinary type of panel with unprotected knife switches. The ventilating fan motors are of the slow speed direct-connected type, operating at the highest possible speeds without noise.

Air Compressors

THERE are two 12″x8″ N-SBE horizontal, single-belt driven compressors with short belt drive, each having a displacement of 314 cu. ft. of free air per minute against a discharge pressure of 40 lbs. per square inch. The electric motors operating the compressors are controlled by automatic starters and pressure regulators. The pressure governor shuts down the motor and stops the machine automatically when a pre-determined maximum pressure is reached. Conversely when the compressor has dropped to a pre-determined minimum, the pressure governor again acts to start up the motor. The compressors are fitted with an unloading system which permits them to start and stop with no load.

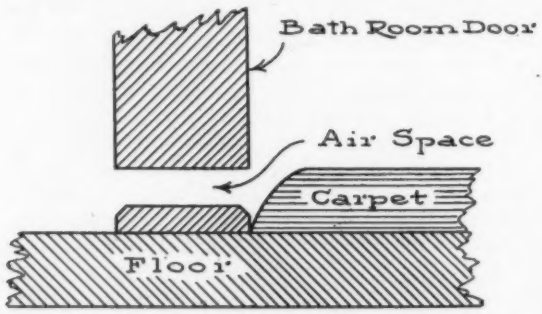
XUM

Ventilation of Public Rooms

THE dining rooms and public assembly rooms are supplied with fresh air which passes over heating coils in cold weather and cooling coils in hot weather. Foul air is drawn off through the ceiling, the openings being concealed by the ornamental iron work from which hang electric light bulbs, forming part of the lighting scheme. The working of the ventilation system can be observed best when a number of smokers are seated at the tables, the smoke travelling in thin threads forming a diaphanous canopy which accentuates the ornamental effect of the lamp cluster support.

A Unique System of Ventilation for Bathrooms

ALL bath rooms are ventilated by fans which exhaust the air. The air supply is drawn in beneath the doors, the exhaust and intake being so nicely balanced that no complaints of drafts have been received. The floors of the rooms are covered with thick carpets and the outward opening bathroom doors barely clear the surface so that no wear can be caused. This leaves a space of about three-quarters of an inch beneath each door, which space has been cleverly utilized as a part of the scheme of ventilation.



A Wireless Operated Clock

IN each room is an electrically operated clock, controlled by a master clock which is regulated each minute by wireless current from the Arlington Station. Even the numerous time stamps in the hotel are on this system.

"Watch Your Step" Not Heard in Ambassador Elevators

THE three main passenger elevators are the new regulated micro self-leveling type, the first to be installed in New York City. When the operator throws the stopping lever before the car floor is at the floor level, or after it has passed the floor level, a small magnet actuates a cam which sets another hoisting machine in operation. This machine being small moves the elevator very slowly and the up or down position of the cam determines the direction. When the floor of the car is exactly at the floor level the magnet leaves the cam and the car stops. Then, and not until then, the doors may be opened. Passengers are thus protected by a double safety device, one which does away with all danger of stumbling or tripping when entering and leaving the car and which also makes it impossible to open or close the doors of the elevator shaft until the car is in the "safe" position.

Hotel Needs

TO keep this hotel city spick and span requires an odd job shop, paint shop, carpenter shop, furniture repair shop, plumbing shop, etc., manned by a staff of men representing practically every building trade. This in addition to the usual place for cleaning, pressing and repairing clothes. There is also a well equipped printing office in which is done the highest kind of work.

Water and Ice

TWO pressure filters purify every drop of water used in the hotel, for all purposes. Water is sent throughout the hotel by two general service electric house pumps of 75 H. P. each.

There are two ice machines which take care of the 75 ice boxes in the hotel and in addition can make 14 tons daily of ice in cakes, or an actual daily capacity of 50 tons of ice. All ice is made of distilled water, reboiled, cooled and filtered, for it is used in drinking water. There is a special brine line for freezing ice cream without the trouble of handling ice and salt. The ice cream storage boxes are also cooled by brine.

Wastes

ALL greasy liquids pass through a grease trap, there being a constant demand from manufacturers for the grease. The basement sump being about 30 feet below the level of the sewer, laundry and kitchen wastes, after being freed of grease, are lifted by three ejectors. All liquid wastes from higher levels flow directly to the sewer after being freed from grease. All garbage is destroyed in an incinerator in the main chimney stack.

The Rise and Run of Stairs

IN *Engineering News-Record*, May 12, 1921, Mr. Raymond C. Reese presented two interesting diagrams to use in proportioning the rise and run of stairs. He proposes the following formula:

$$\text{Rise} \times \sqrt{\text{run}} = 23\tfrac{1}{2}$$

as giving more consistent results than older formulas, for all values of the rise. The proportions required in the Cleveland Building Code he expresses as follows:

$$\text{Rise} = 25.4 \text{ run} - 0.5359$$

from which he derived the one above. Of the older formulas he found

$$2 \text{ rise} + \text{run} = 23 \text{ to } 25$$

gave a better balanced stair for widely varying values of the rise than the two following, which are in common use.

$$\text{Rise} \times \text{run} = 66 \text{ to } 75 \text{ (usually 72 to 75)}$$

and $\text{Rise} + \text{run} = 17 \text{ to } 17\tfrac{1}{2}$

These latter have been in common use for many years, but give very steep stairs at the higher values of rise and very shallow ones for the lower values. For slopes of 18 degrees, or less, ramps would be used instead of stairs.

Colored Wall Plaster

THE desirability of colored wall plaster, containing a uniform tint throughout the depth and not requiring a skin of paint, paper or kalsomine, does not admit of argument. The coloring of plaster, without weakening it in any way, seems to have been solved by chemists of the U. S. Bureau of Standards, with one standard plaster material. Gypsum wood-fibered plaster consists of approximately 85 per cent of calcined gypsum, 14 per cent of plastic material such as clay or lime, and 1 per cent by weight of wood fiber. This 1 per cent by weight is about 15 per cent by bulk. The surface texture of the wall may be varied by varying the amount of wood fiber. The plaster is colored by the simple expedient of dyeing the wood fiber with aniline dyes. Plasters colored by this method will have "life." How it is accomplished is interestingly told in Bulletin No. 181, Technologic Papers, Bureau of Standards. It is sold for five cents by the Superintendent of Documents, Government Printing Office, Washington, D. C.

Effect of Colorings on Concrete Strength

IN a discussion of the paper on "Coloring Concrete," by John W. Lowell, presented at the recent annual meeting of the American Concrete Institute, Prof. Duff A. Abrams, of Lewis Institute, Chicago, made the following report of certain tests conducted to determine the effect of coloring agents on the strength of concrete.

The accompanying table gives the averages of the compressive strengths of 3 x 6-in. cylinders, made of 1:2 mortar and tested at ages of 7 and 28 days. Portland cement was used; the aggregate was a coarse sand from Elgin, Ill. The percentages of coloring materials are in terms of the weight of the cement. Each value is the average of three tests made from a single batch of concrete. The tests on each color were made at different times; this accounts for the three values given in the third column for the mortars without coloring.

Coloring Material	Age at Test Days	Compressive Strength of Mortar Mixed with Different Percentages of Color, Lb. per Sq. In.				
		None	0.5	2	5	10	15
French's C. U. Blue.....	7	2,100	....	2,500	2,960	3,210	3,720
French's C. U. Blue.....	28	3,390	....	3,990	3,990	4,630	4,900
J. M. Wells Co. No. 2 Red.	7	2,790	....	2,750	2,590	2,450	2,270
J. M. Wells Co. No. 2 Red.	28	4,900	....	4,780	4,390	4,410	4,090
Cabot's Carbon Black.....	7	2,840	1,820	1,610	870	690	....
Cabot's Carbon Black.....	28	5,080	4,240	3,070	2,000	940	....

It will be seen that three different effects were produced: The blue appears to possess some hydraulic properties which caused it to show a steady increase in strength up to the highest percentage used (15 per cent. of the weight of cement) at both 7 and 28 days. The red color caused a slight reduction in strength which is practically the same as the effect produced by other inert powdered materials in concrete. The carbon black produced a very great reduction in strength; 2 per cent. of carbon black reduced the concrete strength about 40 per cent. Bancroft in "Applied Colloidal Chemistry," 1921, states that "with a substance like carbon black which absorbs gas very markedly, as little as 5 per cent. of the apparent volume may be due to the carbon black and a liter of carbon black may contain 2.5 liters of air." This peculiar property, no doubt, accounts for the effect on concrete shown by the tests.

Factory Construction for School Shop Buildings

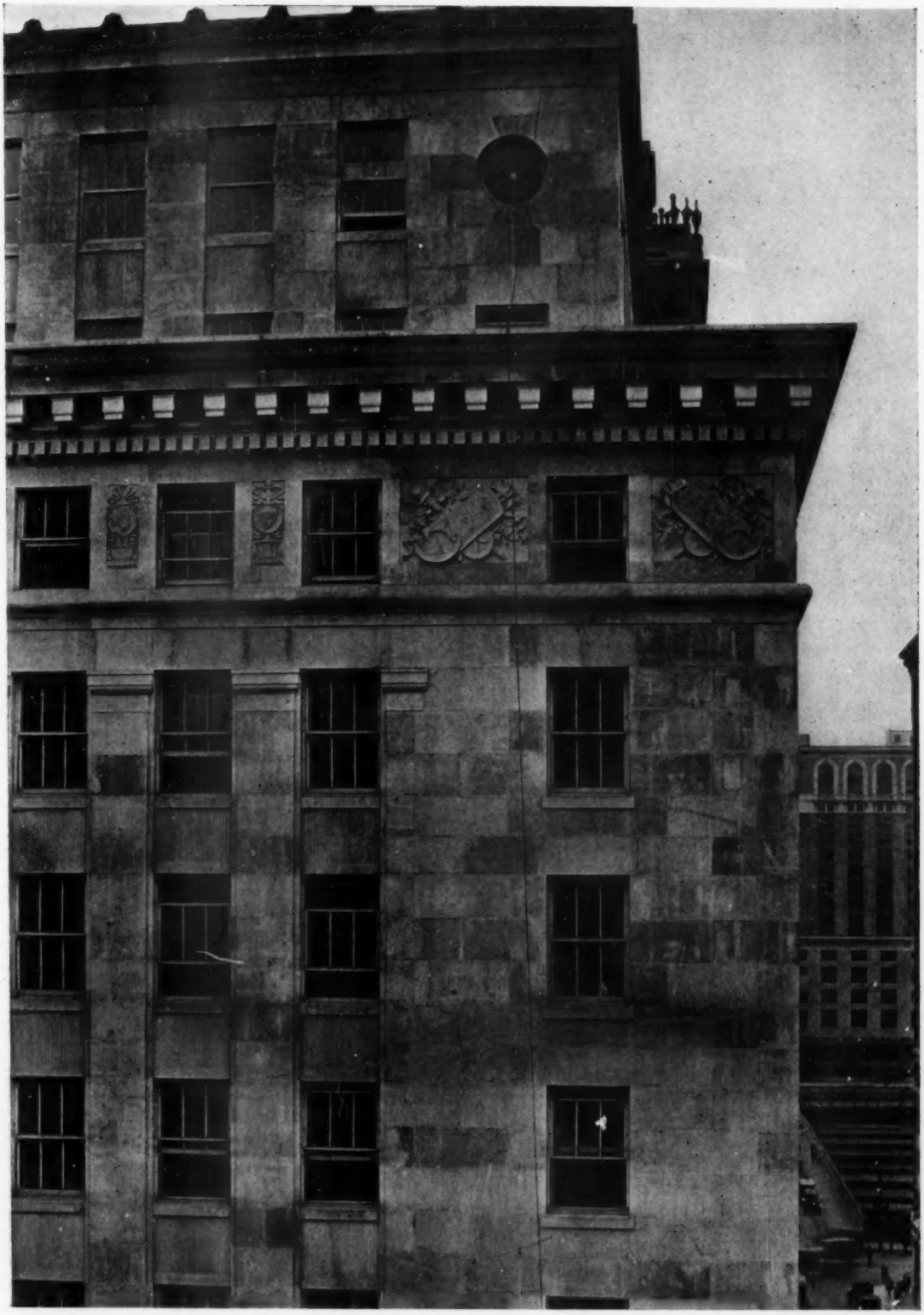
MR. J. C. BESWICK, State Supervisor of Industrial Education, Sacramento, Cal., reports that in his state a number of high schools are erecting shop buildings of concrete. The size found most suitable, which he recommends as a standard, is 40 feet wide by 150 feet long. Factory construction is followed throughout; concrete floors and walls, steel sash, steel roof trusses, some one of the many types of approved roofing for industrial buildings. All interior partitions are of hollow tile or concrete blocks. As this type of partition is movable, it has been adopted because of the many changes in such schools due to introduction of new courses and changes in equipment.

XUM

Tabulation of Building Costs

Fifth of THE AMERICAN ARCHITECT'S series of cost tables, figures for which were furnished by Architects throughout the United States. The first compilation appeared in the January 12 issue

Type of Building	Location	Type of Construction	Equipment	Foundations	Total cubic feet	Contract price or bid received	Cost per cubic foot	When figures were taken
Church	Holdrege, Neb.	Semi-fireproof.	Steam heat; electricity; plumbing.	Not stated.	.....	$56,310	$0.25	May, 1921
Residence	18 mi. from Buffalo, N. Y.	Non-fireproof; hollow tile and stucco walls; wood joists.	Hot air (2 furn.); electric wires in iron conduits; 5 baths, high grade fixtures throughout.	Concrete walls, no footings.	.....	43,119	.2641	Mar., 1921
School	Phoenix, Ariz.	Non-fireproof; brick walls; tile roof; wood floors; one story; small basement for heating plant.	Plenum heating; electric light; vitreous china plumbing fixtures.	Concrete.	350,000	70,000	.20	April, 1921
Country Club	Phoenix, Ariz.	Non-fireproof; brick walls; tile roof; wood floor; concrete steps.	Gas heaters; electric lighting; plumbing.	Concrete.	233,277	40,379	.17	April, 1921
Nurses' Home	Omaha, Neb.	Fireproof; brick walls.	Vapor heating; electric lighting; standard grade plumbing; aut. push button elevators.	Not stated.	260,000	120,000	.45	May, 1921
School	Oxford, Neb.	Semi-fireproof; brick walls; wood sash; wood joists; fireproof stairs; fireproof floor over boiler room; 3 floors; excav. only for gym. and boiler room.	Vacuum steam heat; electric lighting; vitreous plumbing.	Not stated.	417,000	67,562	.162	May, 1921
Residence	Boston, Mass.	Semi-fireproof.	Steam heat; electric light; good plumbing.	Concrete.	35,000	19,000	.543	May, 1921
Office	Baltimore, Md.	Fireproof; steel frame; concrete floors; brick and stone walls; 7 stories to be ultimately 12-story bldg.	Steam heat; electric lighting; first-class plumbing; electric elevators.	Reinforced concrete.	573,31	573,000	.999	May, 1921
Residence	Baltimore, Md.	Non-fireproof; stone walls with 2nd story in gambrel roof; wood floors.	Vacuum steam heat; electric light; 2 baths and 2 lavatories.	Stone.	65,170	43,000	.659	Feb., 1921
Cottage, 1½ stories	9 mi. from Baltimore, Md.	Non-fireproof; stucco on brick walls; wood floors.	Hot water heat; electric light; 2 baths.	Concrete on stone.	38,215	18,000	.47	Mar., 1921
Store	Huntsville, Ala.	Non-fireproof; brick walls; wood floors.	No heat; electric light; plumbing; hand power elevator.	Concrete.	50,000	5,000	.10	May, 1921
Residence	Huntsville, Ala.	Non-fireproof; wood frame, metal lath, stucco walls; wood floors.	Hot air; electric light; plumbing.	Sandstone.	50,544	6,700	.132	April, 1921
Residence	Huntsville, Ala.	Non-fireproof; wood frame, bishopric board, stucco walls; wood floors.	Hot air; electric light; plumbing.	Not stated.	56,142	8,200	.144	Mar., 1921
Residence	Huntsville, Ala.	Non-fireproof; wood frame, bishopric board, stucco walls; wood floors.	Hot air; electric light; plumbing.	Not stated.	51,272	5,600	.108	May, 1921
School	Wayzata, Minn.	Semi-fireproof; tile walls; concrete floors.	Steam heat; electric light; plumbing; water supply; sewage disposal.	Not stated.	870,830	222,000	.255	Sept., 1920
Theater	Lawrence, Mass.	Non-fireproof; brick walls; wood floors.	Heat; light; plumbing.	Concrete.	.....	.....	.39	April, 1921
Church	Brighton, Mass.	Non-fireproof; brick walls; wood floors.	Heat; light; plumbing.	Concrete.	.....	.....	.26	April, 1921
Department Store	Boston, Mass.	Fireproof; steel and reinforced concrete; brick and stone walls; concrete floors.	Heat; light; plumbing, elevator.	Concrete.	.....	.....	.45	May, 1921
Hotel	Boston, Mass.	Fireproof; steel and reinforced concrete; brick and stone walls; concrete floors.	Heat; light; plumbing, elevator.	Concrete on piles.	.....	.....	.70	May, 1921



DETAIL OF UPPER STORIES

BUILDING FOR S. W. STRAUS & CO., FIFTH AVENUE AT 46TH STREET, NEW YORK

WARREN & WETMORE, *ARCHITECTS*

REVIEW of the CONSTRUCTION FIELD

With Reports of Special Correspondents in Regional Centers

The Building Outlook

THAT a fairly definite change for the better has taken place in the building industry can no longer be doubted. The Guaranty Survey, published by the Guaranty Trust Company of New York, reports a nation-wide increase in building activities, which for April exceeded those of any months since June, 1920. Contracts awarded in twenty-five Northeastern States aggregated more than $220,000,000, the largest amount for April of any year except 1920, and 34 per cent. in excess of March. Contracts awarded in the New England States in April totalled $17,800,000, an increase of 34.4 per cent. over March, and contracts awarded in the first four months of this year amounted to $46,400,000, or 25 per cent. more than for the corresponding period in 1920. In New York and Northern New Jersey construction contracts in April aggregated $51,000,000, an increase of 71 per cent. over March. In the Middle Atlantic States, April building contracts amounted to $27,246,000, which represented a slight increase over the preceding month. In all sections of the country residential construction is reported to lead all other building, something to be expected, for, during the period 1914-1920 the United States failed to replace all homes destroyed and construction of new homes was retarded. Comparison of curves of actual construction with projected curves of normal construction reveals a shortage of approximately 1,500,000 homes. This means that for some years we will be occupied in making good the deficiency in addition to supplying the demand due to normal increase in population.

The next step is to make adjustments in the cost of all things entering into a house, of which labor is the most important item. There is no reason to be discouraged for the process of adjustment will follow precedent. The men who are going to build homes are those who have been held by their employers after passing through fiery financial trials. They feel secure in their jobs and consider that their savings may be prudently invested in a home. Many would not do this but for the high rents now prevailing, and which will prevail for some years to come.

THE general depression has set free a great deal of labor and the ranks of untrained labor fill each month with immigrants. The effect will be felt soon in the brick yards, the quarries, the forests and the mines in which production will increase in order to get all possible benefit from prevailing prices. Increased competition brings a lowering of prices, for the law of supply and demand works independently of legislatures and courts. The railways will shortly be able to move goods at lower rates so the effect will be felt everywhere. The greatest retarding effect at the present time upon active resumption in building is the attitude of certain leaders of workmen in the building trades. That this drawback will disappear with the growing demand for the services of the men, together with a lessening of the cost of living no one doubts. We have nothing to worry about now for the tide has turned. Present labor costs are due solely to combination and not to worth or actual demand. The natural laws of competition due to supply and demand have been temporarily set aside. Since unemployment is expressed today in figures running into millions of men, the more needy may be expected to break shortly and the wheels of industry will again hum.

The capitalist class cannot be forced to stand all the blame for the present depression. So long as the banks granted credits freely the adventurous business men borrowed. Interest rates advanced and still men plunged. The check came from the employees who finally rebelled at high prices. They wished to hold on to the wages of 1920 and pay 1913 prices for the things they wanted. The expected happened. Deflation was necessary in view of the lessened demand for goods. No one bought anything except necessaries and credit had to be curtailed. We are now suffering the results of such a policy. Thanks to the inability of the average human being to hold a sustained interest in anything for a long time the "buyers' strike" is ended. Interest rates having gone to a speculative point, checked loans and helped increase bank reserves. The price of money is gradually coming down, paralleling the slightly increased demand for all sorts of goods. The risk having been taken out of business all that remains to hinder wide spread improvement is the present attitude of labor, which, instead of being defiant now has an apprehensive appearance presaging a break.

THERE is work for all and it is a sad commentary on our lack of system in finance that today more than two million men are out of employment in the United States. Recent legislation eliminated the panic as a factor in the regulation of business. Yet this legislation merely corrected previous legislation which brought about the bad con-

ditions. The next great problem for financiers and students of economics will be the discovery of something which will make our profile of business conditions a rippling curve instead of a succession of crested peaks and sharp deep valleys.

In the meantime let the architect and builder take heart; statistics show that the outlook for building is rapidly improving. First the home, next the school, then the hotel, followed by the store and factory. We are now gazing on the promised land. Let us make our plans to enter upon our heritage in time for bountiful harvests next year and for several years to follow.

THE BUILDING SITUATION in CHICAGO and the MIDDLE WEST

(Special Correspondence to THE AMERICAN ARCHITECT*)*

CHICAGO—After being deadlocked for a period of more than six weeks, the Chicago building industry has resumed activity, thanks to the magic influence of Judge Kenesaw Mountain Landis, who has been appointed arbiter of the wage dispute between the building trades and the associated contractors. Judge Landis, it is generally known, is a man of many talents. He made a name for himself many years ago by fining the Standard Oil Company $29,000,000, has been a fearless and great justice of a federal court and more recently achieved much new fame by being selected as the chief arbiter of organized baseball. He adds the building arbitration to his onerous duties because after debating for a week or more the opposing sides of the deadlock were unable to agree upon any other man to whom the question might be delegated. When Judge Landis was mentioned both sides concurred eagerly and as this is being written, the versatile jurist is all set to cut the Gordian knot in his own characteristic manner. The first announcement from Judge Landis is to the effect that the hearings will be public.

Although the hearings will begin very shortly, a preliminary order has gone out that building be resumed and at this time, the sound of the hammer is beginning to be once more heard in the land. It is estimated that something like $100,000,000 in unfinished construction has been held up by the deadlock and that a new wage scale may open the way for a much more general resumption of activity.

While the news of the conclusion of the deadlock is more or less cheering in its nature, much will depend upon the nature of Judge Landis' decision. True, all hands have agreed to abide the decision whatever it may be, but a wage scale unreasonably high would probably have the effect of checking building because the building public is now in a mood to await lower costs all around—in labor as well as in materials. The present scale is $1.25 per hour for skilled labor and $1.00 per hour for unskilled labor. This is considered much too high by builders and it is considerably higher than the scale in surrounding cities. Just where the new decision will place the scale is a matter of utter conjecture, but even the most sanguine of the union leaders expect to see from a 15% to 20% cut.

The matter of labor costs is just one of the stumbling blocks in the path of building, however, and its settlement does not leave the way clear by any manner of means. A more serious difficulty is the great mass of graft and corruption which has been made unpleasantly public by the joint legislative committee which has been probing deeply into the Chicago building situation for several weeks. This committee know as the Dailey Committee, from the name of its chairman, has found that no recent building of importance has been conducted in Chicago without important tribute to labor grafters from the union ranks. Banks, hotels, theatres, even the churches, have been compelled to kick in under one guise or another. Out of the investigation has grown a long list of indictments, none of which, however, has yet come to trial. Whether convictions ultimately result is a matter of doubt, but the unmistakable fact is evident that the Chicago public is now very critically inclined on the subject of building. With the evidence of graft so easy to obtain, a number of important structures are being delayed. There must be a considerable purification of the atmosphere before the big investors in Chicago building projects will forget the recent exposures.

The one item of construction that has escaped the Scylla and Charybdis of the labor deadlock and the graft expose, has been the relatively small matter of residential construction in suburban locations. These home buildings have gone forward with rather creditable regularity with the result that practically every Chicago suburb now has houses for sale. They are being rather eagerly snapped up by rent-weary citizens who are willing to brave the terrors of a commuter's uncertain existence rather than read the new lease from an over-zealous landlord.

AN attempt is being made to accelerate the building of residences in outlying sections of the city by the removal of the fire restrictions governing the construction of houses. The lumber industry of the city doing what it can in favor of such a movement, but opposition is being manifested by brick manufacturers, real estate men and architects and the question is therefore being delayed as to its settlement.

Chicago architects have been actively engaged against any let-down of building restrictions and the arguments of the architects are being given more credence constantly. Stock of architects has gone up a hundred per cent. recently by reason of the fact that, thus far, the building graft revelations have not put any important blots of local architectural

escutcheons. Embolded by their better standing Chicago architects are essaying to advise the public on many issues not formerly within the official purview of the architect. For instance, the Illinois Society of Architects has recently issued a manifesto urging the contractors of Chicago to institute an open shop policy in the matter of labor. The opening of negotiations under the supervision of Judge Landis developed in time, however, to prevent very serious consideration of the proposal.

The building permits for the month of May showed the effects of the building deadlock, although the month was much more active than May of 1920. A comparison of the permits for May, 1920, April, 1921, and May, 1921, is as follows:

Class	May 1920	April 1921	May 1921
Residences	144	346	255
Apartments	5	57	95
Industrial	131	111	61
Others	16	19	12
Totals	296	533	423

In the matter of prices of lumber and other building materials there have been no important changes, though the tendency during the past few weeks has been gradually downward. Among the important changes has been the recent announcement of a further reduction in wallboard by one of the important producers. The latest cut of $3 per 1,000 square feet is the third since December, the total reduction being around $11. The demand for lumber is nominal and it will require a more general resumption of building to establish stable prices.

BUILDING CONDITIONS on the PACIFIC COAST

(Special Correspondence to THE AMERICAN ARCHITECT)

SEATTLE—There has been a better tone in building materials, and with certain steel essentials falling in price, lumber at the bottom and a revision of selling methods, jobbers in construction materials assert that there are prospects for a strong summer and fall building season.

Probably the most definite constructive feature is the cement market. Manufacturers of the coast are practically booked ahead for several months on the road building program and are indifferent to quoting for the building trade. As a result jobbers are making inquiries in Belgium for cement, have received and tested samples, and according to prices c. i. f. Seattle will be able to get as good a cement as that produced here and make a good profit.

Conferences between department heads and road men have been held at Pacific coast headquarters during the past two weeks, and new instructions are to look out for the customary "no" when selling building materials, the grounds being that the trade is so accustomed to looking on the dark side of the picture that to say "no" when asked to buy has become a habit. Salesmen were directed to look over the stocks for depleted lines and to talk up sales from that standpoint. Salesmen who received these instructions ten days ago are reporting amazing progress in getting orders, and other field reports show that similar results will follow all over the territory.

Building operations are beginning in the country. Farmers are getting higher offers for their product than seemed possible 90 days ago, and season's contracts are being closed for the product of entire apple orchards and hay fields. It has been the opinion of jobbers in building materials here that building revival of the nation must originate in the country, and this seems now to be coming true. Farmers have been more interested since nails declined 25c. per hundred pounds.

There is a fair movement of sheet metals, but galvanized pipe is slow due to the fact that builders are not buying ahead but are following up the plumbing angle closely with the superstructure. Fire brick has eased off and the tendency is downward in roofing and plaster wall board.

Generally, the outlook has improved much over the coast territory since a month ago. The increased movement is slow, but there have been no setbacks, and the enquiry is greater than in May.

THE fir lumber market is steady. Logs have declined, but logging operations in the North Coast territory are to be suspended in increasing degree until July 4. Cedar logs are so scarce that raw products have been imported from British Columbia. Shingles therefore are higher.

Governor Louis F. Hart, sensing the universal demand for reductions in taxes in Washington, will support any plan that makes for systematic reductions. He has called a conference of all taxation bodies of the state.

Architect John K. Dew of Spokane, Wash., has been commissioned to draft and design a new $100,000 concrete wholesale house at Wenatchee, Wash., one of the larger interior cities.

A modern fireproof hospital building 255x200 feet and four stories with an estimated cost of $500,000 has been planned by Beezer Bros., of Seattle, for the Sisters of St. Joseph of Peace at Wenatchee, Wash. The building will be constructed in three units, the first of which is to go under construction at once at a cost of $100,000. Work will start July 1. Preference will be given for materials to Wenatchee jobbers.

One of the largest consignments of glass ever shipped from Antwerp to the Pacific coast will be discharged at the Port of Seattle on the arrival of the steamship West Kedron with 8,326 tons of Belgian glass. Portions of the cargo will be discharged at all leading Pacific ports.

DEPARTMENT of SPECIFICATIONS

BEGINNING with this issue THE AMERICAN ARCHITECT inaugurates and will maintain a specification department. It has long been felt by the editors of this journal that the subject of specifications has not generally received the attention either of architectural publications or architects, that its importance deserved, and it is to assist in the correction of this condition that this new department is being established. Obviously, no department of a publication can be a success without reader-interest, and it is hoped that the material presented will quickly develop such an interest on the part of subscribers as will be an inspiration to the editors. Coincident with the inauguration of this feature in THE AMERICAN ARCHITECT is presented the initial installment of material furnished by the American Specification Institute, and it is expected that these two departments will, to a considerable extent, supplement each other. THE EDITORS.

SPECIFICATIONS for building construction and equipment are increasing in importance as the complexity of the work embraced by them becomes more intricate by reason of the advance in the methods of construction and the greater variety of materials that are available for the work. While it is true that each architect attempts to prepare his specifications in a very careful manner so that they will not involve him in controversies inimical to his or his client's welfare, it must be recognized that the foundation for the preparation of specifications is not always what it should be.

In a great many instances more attention has been given to the production of drawings exhibiting excellent design and delineation that in many cases fail to give the basis for complete specification co-operation, than has been given to the "design and delineation" of specifications. The specification must not be too involved or too ponderous in volume; otherwise the very necessity for preparing a great number of specification pages may present to the architect, in his haste to get them in the hands of contractors, such a formidable volume of work that he would easily be tempted to rework an old specification which may have numberless errors and that may in many cases have no application at all to the work for which it is published.

EACH architect who has made a serious study of the art of specification writing and who has attempted to produce documents that will specify and obtain for him and for the owner the result contemplated by the drawings has pretty well fixed in his mind the groundwork he requires in order to assemble the component parts so that a good specification will result. It must be recognized that a really good specification cannot be produced with a poor set of drawings, that is, a set of drawings that fail to exhibit those things that the specifications cannot possibly describe or explain in any manner.

One of the most essential points in the preparation of specifications is the very careful supervision of the preparation of working drawings, having in mind the matters and things that the specification will include, so that complete co-operation between the two sets of documents may be accomplished. It must be borne in mind that the constructor and his estimator have in these two sets of documents two systems for presentation to them of the work it is hoped they will accomplish: first, the drawings must bring to the intelligence of the constructor through his visual perception the kind of work that is to be done and the methods by which it is to be accomplished; and, second, the specifications will be understood by the constructor by the reading of the written word and a mind perception of those things that the specification describes. A complete recognition of these qualities inherent in the construction document will enable the specification writer to prepare his specifications and to see that the drawings are prepared in the correct manner. If the mind impressions gained by seeing and reading coincide, it would indicate that there is complete correlation between the two and that there should be very little difficulty in securing a happy accomplishment of the work.

The writing of specifications should be given just as important a place in the architect's office as structural design. There seems to be no reason for the average architect to dispute this except that his ignorance of their importance or of how to write them correctly is more profound than his understanding of their real function.

An architect surely cannot be ignorant of the im-

portance of specifications if he reads the various architectural, engineering and construction magazines and makes mental note of the many citations of legal decisions where the court was called on to interpret or rectify vague, meaningless or unjust specifications. Nor should an architect be ignorant of the correct method of writing the specifications if he spends a fraction of the time on their study that he spends in studying the design or structural framework of a building.

A proper recognition of the importance of correct specifications will not permit hasty preparation after the drawings are completed, but will require that they be started while the drawings are in progress and then completed several days after the drawings are ready for issue. Haste in preparing written matter tends to confusion, omission of important items and ambiguity.

A STUDY of specifications of various offices throughout the country has revealed a wanton carelessness and an amazing ignorance of all those qualities that should be embodied in a perfect document. They may be slip-shod, unfair in treatment of the contractor, inaccurate, ambiguous and devoid of those qualities that permit analysis. But whatever fault lies within them it is usually a reflection of the attitude of their author that anything that is bound together and looks like a specification must, *per se*, be one.

The specification writer, whether he is engaged in that work only or whether he is the busy architect burdened with executive duties, must have an orderly mind and a habit of learning how and why things are done the way they should be done. Neatness, orderliness and meticulous habit with respect to the business in hand cannot fail to engender those qualities so essential to the writing of good specifications, namely, clearness, conciseness and coherence.

A strict adherence to these qualities is absolutely essential to preparing written discourse. And what is a specification if it is not the architect talking to the contractor, telling him the what, how and where of all component parts of the building he has designed,—a consecutive speech on a given line of thought?

If a specification is made interesting to its reader, who, after reading it, will be able to tell his foreman or superintendent what its message is, then that specification is a good one, an excellent one and indicative of a clever author. It may seem impossible to write such a specification, but it can be done if the proper study has been made of the work involved.

The specification writer should be one who has been a draftsman, a detailer, somewhat of an engineer, a superintendent of construction and a constant student of current technical literature and text books. All of these qualities are essential, forming, as they do, a combination of elements that enter into the preparation of specifications of the better class. If one lacks experience in any of the branches of architectural practice or is disdainful of the necessity for constant study, he is not possessed of the proper qualities for specification writing. Each one supplements the other and together they make up the sum of knowledge brought to bear on the problems encountered in the work.

As the sum of one's knowledge is more often that which has been gained from others rather than that which has been gained through personal experiences, it is essential that the numerous architectural, engineering and mechanical equipment magazines and text books be studied constantly, for what better friends can a specification writer have than those who contribute to the magazines or prepare text books?

A HABIT of study will develop the ability to separate the wheat from the chaff and thus the student will read only those articles that concern him or his field of work if he is extremely busy or if the study proves to be an onerous task.

The "tools" that should be available to the specification writer should consist of a catalog file, data file, completed specifications file, a "master specification," a comprehensive outline and a well-prepared set of drawings.

The catalog file should contain all trade or material catalogs illustrative and descriptive of various parts, fittings and equipment. The catalogs should be filed alphabetically and according to the name of manufacturer and dealer rather than according to subject matter. This is by far the most simple and easily handled arrangement of the file. A small card index with all requisite cross-indexing will control the file and make all matter readily available.

The data file should contain all standard specifications of the American Society For Testing Materials, other standards of workmanship or material prepared by manufacturers that do not properly belong in the catalog file and the many interesting articles to be found in magazines that deal with quality of material and methods of construction or installation. This file should be arranged alphabetically and according to classification of subject matter, cross-indexed by a card system. The alphabetical letter should be given major numbers and the various subject subdivisions minor numbers somewhat on the order of the Dewey Decimal System.

The data file, if intelligently arranged and kept up to date, will prove to be of great value, for it will be found to organize the voluminous printed matter on materials and methods of construction that is constantly available to all.

A file of specifications that have been written in the past should be kept at hand, as they will be referred to constantly. During the construction of a building, if it is discovered that a paragraph could have been written more clearly or more concisely or

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if a method outlined has been found to be incorrect or not suitable, a note should be placed in the specification at fault and reference made to the master specification described later. No specification can be considered perfect until it has passed through the fire of construction work and all its faults, if there be any, revealed to the author. By means of such notes there should be no possibility of repeating the mistakes made in that specification and in a short time the number of errors will be very small.

A master specification should be arranged as if it were a complete specification for a building, and in it should be placed all paragraphs that are used repeatedly and consequently become somewhat standardized. Any specification for an unusual item, such as steel pipe cofferdams, watertight bulkhead doors, or similar matter that has been studied carefully and can well be made a standard should be placed in this file. It will be found that a loose-leaf book, in which may be pasted the various matters belonging therein, will be convenient and permit of constant change with ease and quickness.

A comprehensive outline for specifications is a most desirable help, and while its preparation may appear onerous and a task that is subject to procrastination, it should be prepared very carefully. This outline will be a list of all items that must be mentioned in the specification for any particular building and must be subdivided and cross-indexed in a careful manner. As each office usually confines its work to a small number of classes of buildings, the outline should be prepared with the office practice in view, without spending time on matter for buildings that may never come into the office.

The outline not only will serve as a check for specification work but also a check when studying the drawings. As the specification writer usually is the last man to look over the drawings and as he approaches them from an angle differing from that of the draftsmen, he undoubtedly will discover errors, discrepancies or omissions that should be rectified. The outline will greatly facilitate all checking and analysis work and through its constant use can be changed and improved repeatedly.

WHILE studying the drawings before taking up the actual task of writing the specifications the mind must assert its analytical powers and those qualities that will lift the drawings from the two-dimensional plane of tee square and triangle to the three dimensions of true perspective. The drawings must be analyzed so that the specifications may be co-ordinated with them, so that they will describe those matters not fully covered by the drawings and will omit descriptions shown, or that should be shown by the drawings. The specification must not be a catalog of those things shown on the drawings, but must be a descriptive narrative, including matter the drawings cannot show, so that the structure will appear in its proper aspect and reveal certain methods of construction or certain things to be done that will not be so evident on the line drawing itself.

While analyzing the drawings an outline of general items peculiar to the building should be made, to be marked later in the general outline mentioned above. Copious notes can well be made at this stage of the work, for it will be found that the mere writing of the notes will tend to fix their nature and import in the mind.

When the specification is to be started the various branches such as Wrecking, Excavation, etc., should be listed and given numbers, thus: Section 1—Wrecking, Section 2—Excavation, Section 3—Concrete Masonry, Section 4—Reinforcing Steel, Section 5—Structural Steel, Section 6—Brick Masonry, arranging the various sections as near in the order of the activities at the building as possible.

Then an outline should be made for each section, making reference to the general outline for the usual standard matters and arranging in proper sequence the items peculiar to the building.

Bear in mind always that if the specification is written so that the activities described therein are in sequence as they occur in the actual construction work, the clearness of the specification will not fail to be evident, for then the building will actually grow in the mind of the reader.

ANNOUNCEMENT by BOARD of GOVERNORS AMERICAN SPECIFICATION INSTITUTE

SINCE the announcement in the columns of THE AMERICAN ARCHITECT of the organization of The American Specification Institute there has been a very gratifying response to the appeal for members. This response indicates a necessity for the careful and orderly study of the many problems involved in the preparation of specifications and equipment and that there is a very great appreciation of the importance of specifications of merit.

All those who have been attempting to improve the writing of specifications have discovered that there are very few text books on the subject and none that will give practical assistance in the preparation of a complete document. The basic idea of the founders of The American Specification Institute has been that such a text book is quite essential to a thorough understanding of the science of specification writing and that surely there can be no better authors of such a work than those specification writers who are intimately conversant with the problems involved.

The Institute proposes to produce such a text book as one of its main services to its membership. Each member is expected to contribute to the task according to his best ability so that he will have at his disposal the combined thought of the entire Institute membership.

PUBLICATION of the various activities of the Institute will be through the medium of frequent bulletins in conjunction with reports of current activities, etc., published in THE AMERICAN ARCHITECT. The bulletins will be of uniform size, so that they may be bound in loose-leaf covers, available for immediate use. Data of all kinds relating to specification work, reports of all committees and reprints from technical or other magazines will all form a part of this handbook, so that eventually it will become the specification writer's "Bible."

It seems proper at this time to republish the Plan and Scope of The American Specification Institute, as it explains in a concise manner the scheme of activities contemplated.

The names of the Board of Governors and the general list of members, as of June 10th, are as follows:

Chester L. Post, member of Condron Company, Consulting and Structural Engineers, Chicago.
Frank A. Randall, member of Berlin, Swern and Randall, Architects and Engineers, Chicago.
Arthur T. North, Architect and Engineer, Chicago.
Gardner C. Coughlen, Architect, Chicago.
H. Kenneth Franzheim, Architect, Chicago.
Meyer Fridstein, Architect and Engineer, Chicago.
L. O. Kirk, Architect and Engineer, Minneapolis.
Samuel Hannaford & Sons, Architects, Cincinnati.
C. Howard Crane, Architect, Detroit.
M. H. Johnson, Jr., Architect, Terre Haute.
Prof. L. H. Provine, University of Illinois, Urbana.
Ralph B. Higgins, Architect and Engineer, New York City.
Mauran, Russell & Crowell, Architects, St. Louis.
R. M. Stubbs, Bridge Engineer, St. Louis.
Franklin H. Coney, Consulting Engineer, Chicago.
Frederick A. Muhlenberg, Architect, Philadelphia.
A. G. Zimmerman, Architect, New York City.
John V. Bennes, Architect, Portland.
John S. Archibald, Architect, Montreal.
Ellery Davis, Architect, Lincoln.
Tourtellotte & Hummel, Architects, Boise.
Smith, Hinchman & Grylls, Architects and Engineers, Detroit.
Sanguinet & Statts, Architects, Fort Worth.
Garber & Woodward, Architects, Cincinnati.
W. S. Hays, Architectural Engineer, Chicago.
Frank Irving Cooper Corpn., Architects and Engineers, Boston.
Prof. James M. White, University of Illinois, Urbana.
Hatton, Holmes & Anthony, Architects, Cedar Rapids, Iowa.
A. Lincoln Fechheimer, Architect, Cincinnati.
F. S. Schwinn, Engineer, Houston.
C. B. J. Snyder, Architect, New York City.
Walter F. Ballinger, Architect and Engineer, Philadelphia.
Harry B. Wheelock, Architect, Birmingham.
Alexander C. Eschweiler, Architect, Milwaukee.
Ludlow & Peabody, Architects, New York City.
Albert Kahn, Architect and Engineer, Detroit.
James Gamble Rogers, Architect, New York City.
A. A. Aegerter, Architect, St. Louis.
Waddell & Son, Consulting Engineers, Kansas City.
John Galen Howard, Architect, San Francisco.
R. J. Needham, Mech. and Elec. Engineer, Montreal.
Edwards & Sayward, Architects, Atlanta.
Prof. Goldwin Goldsmith, University of Kansas, Lawrence.

Prof. W. K. Hatt, Purdue University, Lafayette.
F. E. Davidson, Architect and Engineer, Chicago.
C. W. Koehler, Engineer, Chicago.
Henry Calder Thorne, Architect, Ithaca.
Walter Martin Kedian, Architect, Cleveland.
Edward Woods Husband, Architect, Providence.
Hugh Y. Davis, Architect and Engineer, Stockton, Calif.
Eldon L. Boots, Architect, Ames, Iowa.
Morris B. Payne, Architect, New London, Conn.
Hugh Borland, Structural Engineer, Chicago.
C. M. Vester, Architect, Wheeling.

PLAN and SCOPE of The AMERICAN SPECIFICATION INSTITUTE

AS heretofore produced specifications have been largely the product of individual effort and as such have varied in many features that can be conventionalized so as to be common to all. Owing to a present lack of means for collecting and distributing information concerning specifications and the writing thereof, there is a needless duplication of study, research and labor on the part of specification writers. Practically all other professions are so organized that the interchange of knowledge is effected with resulting improvement in the quality of production and professional standing. It is to improve the conditions affecting the writing of specifications and to benefit by organized effort that THE AMERICAN SPECIFICATION INSTITUTE is organized. This organization is intended to be national in scope and invites co-operation of all those interested in specifications. The plan and scope of this organization follows:

I. PURPOSE

1. To increase knowledge concerning and improve the methods of writing specifications. The kinds of specifications included are those for buildings, engineering structures and all works whatsoever in which materials of construction and labor are used; for the installation and use of mechanical and sanitary apparatus and equipment; for the fabrication and installation of all furnishings and furniture; for all ornaments and ornamentation, both interior and exterior; for paving, planting, embellishing and improving of grounds and waterways; and for such other things as are produced or sold on specifications.
2. The Institute will not interfere with any of the present organizations such as:
   a—The American Society for Testing Materials
   b—Kindred national and local architectural and engineering societies
   c—Manufacturers' and trade associations, but will endeavor to carry forward the activities of such and give additional assistance to specification writers.

II. BENEFITS TO BE OBTAINED

The architectural and engineering professions will gain through

a—The development of specification writers
b—The development of specifications that will eliminate cause for argument and guesswork and lower the cost of building construction by eliminating waste of labor and materials
c—Professional recognition of specification writers.

III. MEMBERSHIP

Will be composed of

1. ACTIVE MEMBERS
   a—Persons who devote their entire time or a part thereof to the writing of specifications
2. ASSOCIATE MEMBERS
   a—Testing and laboratory engineers
   b—Instructors in specification writing in architectural and engineering schools.
3. HONORARY MEMBERS
   Persons who have rendered distinguished service to the art or science of specification writing.
4. PATRONS
   Persons who contribute to the financial support of the Institute.

IV. ORGANIZATION

a—Will be governed by a constitution and set of by-laws
b—The secretary will direct the activities of all researches, co-operation with other societies, etc., and will secure and provide answers to all inquiries of the members.

V. ACTIVITIES OF ORGANIZATION

1. Study of materials

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a—The production and physical properties of raw materials

b—Methods of manufacturing, fabrication and finishing

c—Relative value based on appearance, initial cost and maintenance, effect of combinations with other materials and proper materials for various types of buildings of varying grades.

2. Methods of writing specifications

A study will be made of:

a—The means of accomplishing complete co-operation between the drawings and specifications and determining

What methods of construction and installation should be used;

What the drawings should show or indicate;

What should be omitted for inclusion in the specifications;

b—The development of an outline or checking list

c—The general contract conditions.

d—Specific requirements governed by local conditions

e—Use of Standard Specifications of materials as prepared by societies and manufacturers

f—The arrangement of specifications so as to conform to the sequence of construction and installation of work

g—The writing of specifications that are clear, concise, coherent and that can be understood by the courts

h—The principles of contract law as it affects the writing of specifications

i—Possible standardization of building codes

3. The securing of the adoption of recommended practices by the professions and others concerned.

4. The deliberations of the Institute, discussions, treatises by members or invited contributors and other matters will be published.

THE Board of Governors has been so impressed with the necessity for a comprehensive outline for use in preparing specifications that it has determined immediately to make a study of this important subject. The first bulletin on this subject has already been distributed to members and, members who have not already done so, are requested to give it their earnest attention and send to the Secretary suggestions and criticisms; if they have none, then their approval.

This bulletin contains a general outline of the various branches of work that a specification must cover. Subsequent bulletins will carry comprehensive outlines of each branch and it is hoped that every member will endeavor to make these bulletins the subject of earnest study on his part to the end that the final documents will represent the combined thought of the entire membership.

The Executive Secretary's office is accumulating a vast amount of data, catalogs and standard specifications of all kinds and will be glad to answer, or obtain an answer to, any inquiry from members. Members are urged to send to the office of the Executive Secretary all data which may be of benefit to other members and to assist in every way in the formation of a complete library on specifications.

Very shortly discussions on the history of materials, their production, fabrication or manufacture, finish and economical uses will be made the subjects of bulletins. This matter is now in preparation. As it will cover a great many materials, it will prove to be one of the most interesting and instructive services of the Institute.

All inquiries should be addressed to The American Specification Institute, 127 North Dearborn Street, Chicago, Illinois.

THE AMERICAN SPECIFICATION INSTITUTE,
Gardner C. Coughlen,
Acting Executive Secretary.